AMATEUR RADIO

MARCH 1963

Vol. 31, No. 3

2/-

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Contains: one 6" c.r. tube VCRX263, three CV327/EF52, five CV858/ECC91/6J6, two CV140/EB91/6AL5, and one 6V6GT. Brand new condition. **£7/0/0.** 5/- delivery charge to railhead.

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6SN7	12/6		UL41	7/6	3 a £1
6SS7	7/6	3 a £1	VR53	5/-	5 a £1
6T7	7/6	3 a £1	VR101	5/-	5 a £1
6V4	11/4		VR102	5/-	5 a £1
6V6GT	16/-		VR103	5/-	5 a £1
6X4	10/-		VR105	10/-	
6X5	15/-		VR136	2/-	12 a £1
6Y6	5/-	5 a £1	VR137	2/6	
7A8	2/-	11 a £1	VT25	5/-	
7C5	5/-	5 a £1	VT78	3/6	
7C7	2/-	12 a £1	VT127	4/11	5 a £1
7E6	3/6	7 a £1	VT501	7/6	3 a £1

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on 5¾" Reels

1275 feet, **42/-**; usual price 62/-.

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Ceramic

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33 pF. 500 volt — 470 pF. 500 volt

Metalpak

0.1 μF. 650v. d.c. — 0.05 μF. 500v. d.c.

0.1 μF. 175v. d.c. — 0.02 μF. 750v. d.c.

0.5 μF. 500v. d.c.

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32 μF. 350 volt, **8/- each**

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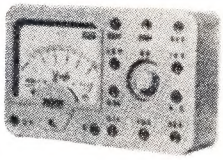

300 μA. movement. AC and DC voltages: 0-10, 0-50, 0-250, 0-500, 0-1000v. Current ranges (mA.) 0-1, 0-100, 0-500 mA. Ohms range: 0-100,000 ohms. Size: 3¾ x 2½ x 1¼ inches. Complete with leads.

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Piezo HM7, hand type w/plug, **35/-**

Piezo SM1, hand type w/plug, **27/6**

Piezo DX29, Dynamic Mike, pencil type with stand **£4/2/6**

1N21 SILICON DIODES

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WI Broadcasts:

VK2WI: Sundays, 1100 hours EST, simultaneously on 3573 Kc., 7146 Kc., 50.16 Mc. and 145.13 Mc.; Intrastate call-backs taken on 7050 Kc. VHF 1930 hours EST on 50.16 Mc. and 145.13 Mc.; call-backs taken on 2 metres.

VK3WI: Sundays, 1030 hours EST, simultaneously on 3602 Kc., 7146 Kc., 50.5 Mc., 144.5 Mc. (a.m.), and 145.85 Mc. (f.m.); 2000 hours EST, 3602 Kc. and 144.5 Mc. Intrastate hook-ups taken on 3602 Kc.

VK4WI: Sundays, 0900 hours EST, simultaneously on 7146 Kc. and 14.342 Mc. Intrastate hook-ups taken on 7105 Kc.

VK5WI: Sundays, 0900 SAT, on 7146 Kc. Relays on 3.7, 14.2, 50.02, 144 and 288 Mc. Intrastate hook-ups taken on 7125 Kc.

VK6WI: Sundays at 0930 hours WAST, on 7146 Kc. Intrastate hook-ups taken on 7085 Kc.

VK7WI: Sundays at 1000 hours EST, on 7146 Kc. and 3672 Kc. Intrastate hook-ups taken on 7115 Kc.

★

OUR COVER

Looming high on a hill at Ballarat (Victoria) there are a series of aerial towers, between which are Sterba curtains, which imply the location of a commercial broadcaster; such is not the case. This most impressive array is the joint property of VK-3HW and VK3AMH.

In a later cover photo will be shown the equally impressive station set-up, which would rank with any Amateur station, irrespective of location.

FEDERAL COMMENT

★

PROGRESS OF YOUTH

For many generations as the world has progressed man as the more experienced being has taken an interest in youth, trying—and with great success—to provide for him the opportunities which man himself missed through circumstances either beyond his control or which he did not grasp when opportunity presented itself.

This success is evidenced by the younger age of men holding responsible positions in government, in industry, in the municipalities of large cities, in provincial towns, in commerce, in schools and universities, in science laboratories—in fact in every walk of life where man employs himself in the age-long toil for existence. Such success has not just "happened" but is the direct result of man's interest in youth, in passing on to the younger generation the knowledge and experience he himself has gained over a longer span of life.

As the world entered the technological era youth was first presented with known facts then left with unsolved problems. Gradually youth met the challenge of his forbears and took an interest in matters previously left to the older man. Educational standards rose until today youth has opportunities unthought of a mere few decades ago.

With the dawn of the space age greater and greater call is made upon youth to tackle the technical problems involved in a venture so gigantic that it is sometimes beyond the comprehension of older people. Radio, which itself was a miracle five decades ago, is being surplanted by technological progress undreamed about when radio was in its infancy. And yet, despite the wonder of it all, the basic concepts of radio are the fundamentals of this great new adventure.

For youth today the study of radio and its principles is the first step to wonders yet unknown. It is the first step to be encouraged by man in his efforts to give to youth what he himself might have missed or only partly entered into. Never before has such a challenge been extended to youth as this challenge to explore the never-ending world of electronics.

In pursuit of this thinking the Wireless Institute of Australia is promoting the growth of a Youth Radio Club Scheme throughout Australian Schools. Already some thirty such clubs are in existence, bringing to youth at a bright young age the opportunity to take that first step towards the challenge of exploring the technical world ahead, and in so doing assist them in science, mathematics and other subjects so important in the technological advancement of their country.

By every means we have at our command we should support and encourage such a scheme for the advancement of youth into the field in which we ourselves are so interested, a field in which our sons will be the scientists of tomororw.

Elsewhere in this issue of your magazine is a call for those used or unwanted pieces of radio equipment—capacitors, sockets, valves, resistors—which will be wanted by the youths who take an interest in the Youth Radio Clubs. From these boys will come the Amateurs, who, like hundreds of those before them, will fill the technical posts in this young country of Australia which is surely taking up its important role in the technological advancement of the world.

The Institute asks you to DO your part, not just THINK about it! Follow the instructions elsewhere in this magazine and send that unwanted equipment to your Division so that youth can gain the early knowledge so essential in this rapidly evolving world of electronics.

FEDERAL EXECUTIVE, W.I.A.

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Build a Multi-Band Bandspread Receiver*

USING COMMAND 3-6 Mc. SET AS BASIS

LUTHER UYS, ZS6E

AFTER 10 years of mobile work I have found that the transmitting side of it presented no difficulty whatsoever, but the receiving end has always been a "pain in the neck".

Having tried about ten different types —with converters (both commercial and home-built), I found that they all fell far short of the "shack" standard. There was no bandspread, no selectivity and no noise limiters; in short, no reception if the signal was less than "9 plus".

This inspired, or rather, forced me to build something to meet my requirements.

The Command receiver is well known for its fantastic reception; but falls short on these points:—

(1) Single band receiver.
(2) No bandspread.
(3) Broad i.f's. (Not BC453).

The following is a step-by-step procedure to overcome these and other shortcomings.

STEP-BY-STEP PROCEDURE

1. Remove: bottom and top covers; all valves; all i.f. cans; r.f./mixer/osc. unit at bottom.

2. Rewire filaments to suit and replace with 6 volt valves if required, but leave 12SR7 detector valve until later.

3. Cut away wires at back and leave only h.t., filament, and pick up r.f. gain wire, i.e. pin No. 3 on back plug, pin No. 1 on front plug and insert 10K pot. on front for r.f. gain control.

4. Pick up b.f.o. shut-off wire, i.e. pin No. 4 at back or pin No. 5 front plug, and insert switch to ground.

5. Cut away existing output transformer, i.e. T1 and replace with universal output transformer. Refer to main and sub-schematics.

This brings the main or normal modifications to an end (which most of you must have done already if your receiver is working).

The following steps are **radical** changes and must be followed to their logical conclusion, there will be no turning back.

6. Identify r.f./mixer/osc. sections thus: rx upright, then the antenna terminal will be at the left. From left to right you will find r.f./mixer/osc. at the bottom, each one being under its section of the main tuning condenser C4A, B and C.

Also, the r.f. coil has a red dot and will henceforth be referred to as L1; the mixer coil has a yellow dot and will be referred to as L2 and L3; and the oscillator coil has a blue dot and will be referred to as L4 and L5.

7. Make a good note of step 6, because you will be constantly referring back to it when studying these coils more closely.

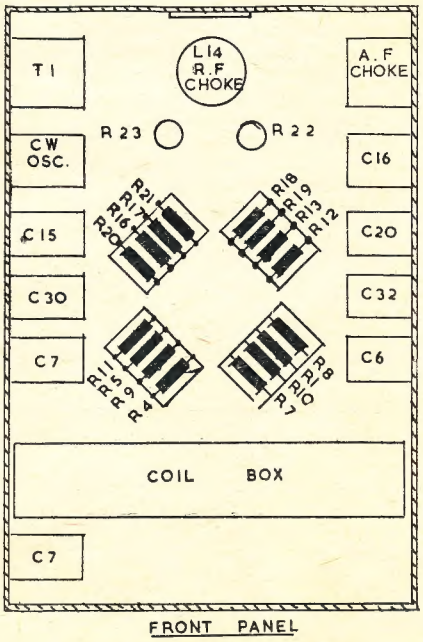
* Reprinted from "Radio ZS," September, 1962.

● This article details, in an easy step-by-step manner, how a satisfactory mobile receiver can be made from the Command receiver having efficient bandspread, good selectivity, and effective noise limitation. Each step is carefully detailed for the constructor wishing to duplicate the author's work.

8. Remove the rx cover at the top of the unit. This will expose the r.f. (C4A), mixer (C4B), and oscillator (C4C) tuning condenser, i.e. your main tuning condenser. Observe the points of connection of the plug-in unit and count the pins clockwise.

9(a). Resolder: (a) r.f./C4A stator wire from pin 4 on to pin 5. (b) Mixer stator wire of C4B from pin 4 on to pin 5. See that the 100 pF. condenser remains in position. (c) Oscillator stator wire of C4C from pin 4 on to pin 6.

9(b). Remove: (i) The padder and trimmers (the unit as a whole) from the oscillator condenser C4C and replace with a good quality 0.01 μF. condenser to ground. (ii) All trimmers on top of C4A and C4B, i.e. two on each section. (iii) The existing antenna lug.



Underneath the Chassis.

View of receiver, inverted, and with front panel towards you. There are several other resistors and condensers not shown in the above diagram, but they are easily identifiable by inspection.

When these steps have been completed, close up the top section and turn the receiver upside down.

Now, counting the pins anti-clockwise.

10. Remove the green wire from pin 6 of the oscillator plug to the cathode of the mixer and insert a 5K resistor from pin 1 of this plug to the cathode of the mixer.

11. Remove all the 5K resistors from the oscillator coils—both the existing one and any new ones you may have scrounged—because step 10 will have taken care of this circuit.

This completes the wiring modification to the receiver side of the r.f./mixer/osc. unit. All other modifications to these sections will now be done on the plug-in units.

At this stage we will get the i.f's. in order that you can test as soon as you get the r.f./mixer/osc. plug-in unit going.

I.F. MODIFICATION

If the receiver you have is one with a sharp i.f.—Bob's your uncle, and nothing is required to be done. The i.f's. should be no sharper than 455 kc.; 700 kc. will also do.

12. Obtain three 455 kc. modern high-gain i.f. cans, e.g. the types that are used on a.c./d.c. sets 119-0-12, using 1655-1 in the 1st i.f., 1655-1 in the 2nd i.f., and 1655-7 in the 3rd i.f. (I used these and my modifications are based on them.)

13. Open the Command i.f. cans and cut the four pillars away with a hacksaw, strip the wires away from the pins and thus leave the plug-in unit free.

14. Enlarge the centre hole of the plug-in unit with a 3/16" drill, this will enable you to adjust the bottom slug of the i.f. can through the hole.

15. Now it is advisable to remove and replace all the existing 0.05 μF. metal canned condensers that obstruct the bottoms of the i.f's. with 0.05 μF. paper condensers, making sure that you mount them in such a position that you can get at the bottom slug of the i.f. with a tuning stick.

16. Drill a 3/16" hole into the base-plate of the i.f. can by first plugging in the i.f. and then drilling through, as described in step 14.

17. Mount the new i.f. cans inside the stripped Command i.f. cans, making sure that:—

(a) Plate pin 4 of the new i.f. is connected to pin 1 of the plug-in unit.
(b) H.t. pin 3 of the new i.f. is connected to pin 2 of the plug-in unit.
(c) Grid pin 1 of the new i.f. is connected to pin 5 of the plug-in unit.
(d) A.v.c. pin 2 of the new i.f. is connected to pin 6 of the plug-in unit.

(N.B. Count the pins on the plug-in unit clockwise, looking from the inside of the can.)

Identify:—
1st i.f.—L6, L7 (red).
2nd i.f.—L8, L9 (yellow).
3rd i.f.—L10, L11 (blue).

18. Replace the i.f's. and screw them down. Just remember that if too much gain is experienced (recognised by self-oscillation when you are peaking the i.f's.), this can be cured by damping the primary of the third i.f., i.e. by soldering a resistor of anything from 50K to 100K across pins 1 and 2. This completes the modifications to the i.f's.

THE COIL-PACK

19. **Constructing the r.f./mixer/osc. plug-in units.** (Henceforth referred to as the coil-pack.)

With the plug-in coil-pack in position, mark off the centre and sides of the coil-pack on the sides of the receiver.

20. Remove the plug-in unit, place the bottom cover in position and transfer the markings on to the cover. You will have three markings on each side of the cover, check these with a set square and scribe lines across the cover. Cut the cover through the centre line and bend both sides inward at right angles on the two remaining lines. Now, if you have these covers in position, the coil-pack will be able to slide into position without you having to remove the bottom cover.

COIL DATA

Use 7/16" x 1" slug-tuned formers with the ribs cut away to leave a perfectly round coil former.

Band	L1
80	35 turns Litz, 3/16" wide.
40	25 turns close wound, 28 s.w.g.
20	15 " " " 24 "
15	12 " " " 20 "
10	9 " " " 20 "

Band	Antenna Link
80	8 turns at cold end L1, 38 s.w.g.
40	6 " " " " " 38 "
20	6 " " " " " 38 "
15	6 " " " " " 38 "
10	6 " " " " " 38 "

L3
Same as L1.

L2
Same as Antenna Link.

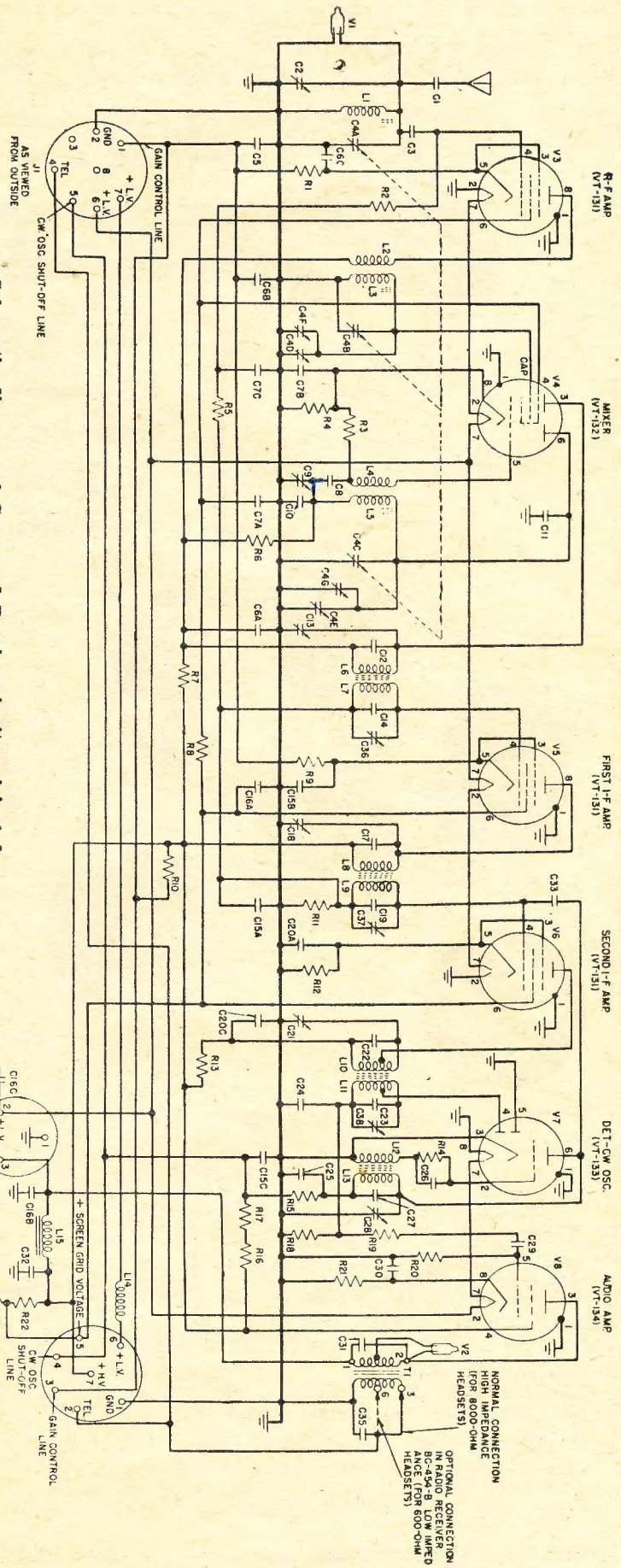
Band	L5
80	30 turns Litz, 3/16" wide.
40	23 turns close wound, 28 s.w.g.
20	15 " " " 24 "
15	12 " " " 20 "
10	8 " " " 20 "

Band	L4
80	6 turns, 38 s.w.g.
40	5 " 38 "
20	4 " 38 "
15	3 " 38 "

Note.—The 10 metre coils do **not** have slugs.

General Instructions. — See main script for mounting instructions. These must be read in conjunction with the coil modification data.

C1—11 pF.
C2—15 pF.
C3—100 pF.
C4 (A to G)—Gang (147 pF.)
C5—3 µF.
C6—(A, B, C)—0.05/0.05/0.05 µF.
C7 (A, B, C)—0.05/0.05/0.05 µF.
C8—200 pF.
C9—40 pF.
C10—365 pF.
C11—3 pF.
C12—180 pF.
C13—17 pF.
C14—180 pF.
C15 (A, B, C)—0.05/0.05/0.05 µF.
C16 (A, B, C)—0.22/0.22/0.22 µF.
C17—180 pF.
C18—17 pF.
C19—180 pF.
C20 (A, B, C)—0.05/0.05/0.05 µF.
C21—17 pF.
C22—180 pF.
C23—180 pF.
C24—200 pF.
C25—0.001 µF.
C26—100 pF.
C27—180 pF.
C28—34 pF.
C29—0.006 µF.
C30—15 µF.
C31—0.001 µF.
C32—5 µF.
C33—Wiring Capacitance (under 2 pF.)
C35—750 pF.
C36—17 pF.
C37—17 pF.
C38—17 pF.
R1—620 ohms
R2—2 megohms
R3—51,000 ohms
R4—620 ohms
R5—150,000 ohms
R6—200,000 ohms
R7—200 ohms
R8—200 ohms
R9—620 ohms
R10—360,000 ohms
R11—100,000 ohms
R12—510 ohms
R13—200 ohms
R14—100,000 ohms
R15—5,100 ohms
R16—51,000 ohms
R17—51,000 ohms
R18—510,000 ohms
R19—100,000 ohms
R20—2 megohms
R21—1,500 ohms
R22—7,000 ohms
R23—7,000 ohms
L1—Antenna Input
L2, L3—RF Amp.
L4, L5—RF osc.
L6, L7—In 1st IF
L8, L9—In 2nd IF
L10, L11—In 3rd IF
L12, L13—CW Osc.
L14—RF Choke, 112 Microhenrys
L15—AF Choke, 3 Henrys
VT131—12SK7
VT132—12K8
VT133—12SR7
VT134—12A6



Schematic diagram of Command Receiver in its original form.

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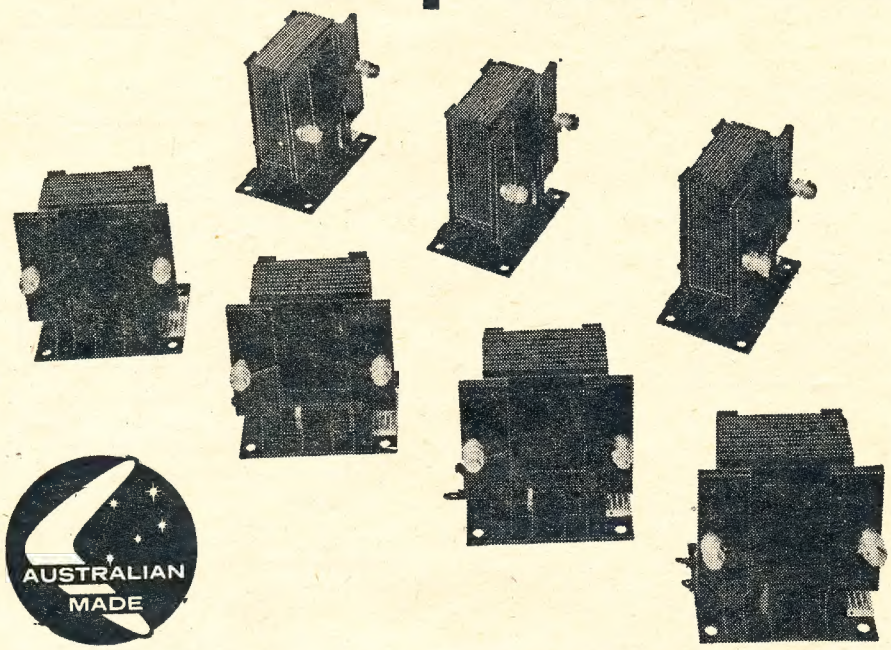

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21. As these coil-packs were not designed for continual plugging in and out, you must construct four little guides from aluminium, bent ¼" x ¼". These are bolted to the sides of the receiver chassis to ensure proper positioning of the coil-pack.

22. The side-flaps which were originally used for bolting the coil-pack down must be modified in the following manner:—

(a) Remove the bolt-heads on both sides.

(b) Bend the points inwards, making sure that the sides have a spring effect to ensure a proper earth contact for the coil-pack, as good earthing is essential.

23. Check Step 11.

24. Decide on how many bands you wish to work, which will depend on how many coil-pack units you are able to scrounge. The modification of this unit was based on five bands.

25. Study coil-pack modification schematics closely, and set to work as follows:—

26. Mount the trimmers as shown in the pictorial of the new coil, making sure you are able to get a trimming-tool through the can for trimming and lining-up the receiver at a later stage.

27. Mount coil-formers L1 to L5 between pins 6 and 1. In other words, the coil-former is positioned slightly to one side, leaving you space for the trimmers.

28. Get the oscillator oscillating 455 kc. higher than the r.f. signal and line the receiver up in the normal way, until perfect tracking is obtained. Repeat for each band. (Refer to line-up data.)

A.V.C., A.N.L. AND EXTRA AUDIO

29. Refer to the relevant schematic. Remove C16A, B and C and replace with 0.25 μF. paper condensers. (The 0.25 μF. condenser C16A going to the middle of the wire-wound resistors is essential, as it is the common by-pass to all screens.) This step will take care of this. The C16B and C are not essential.

30. Mount a 6H6 valve in the space vacated by these condensers, making sure that pin 4 is the nearest to the side of the chassis. This will ensure that the plate, pin 5, will be facing pin 6 of the third i.f., in order that a 220K resistor can couple directly from pin 6 of the i.f. to the plate of the 6H6.

31. Remove the 12SR7 and replace with a 6SN7, balancing the filaments of the 6SN7 and 6H6 if 12 volt filament supply is used, making sure that the 6H6 has an extra resistor across its filament to balance it against the heavier drain of the 6SN7. If you are using 6 volt valves exclusively, balance the 6SN7 with a 6V6 (the 6V6 valve draws 0.45 amp. and the 6SN7 0.6 amp., balance with extra 400 ohm resistor across 6V6) and the 6H6 with a resistor to ground.

Follow the schematic, which is self-explanatory. For those who may have difficulty in following it, we will continue with the step-by-step instructions.

Condensers in Series and Parallel Total Values

Band	Series Cond. in R.F.	Parallel Cond. in R.F.
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	50 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.

Band	Series Cond. in Mixer	Parallel Cond. in Mixer
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	50 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.

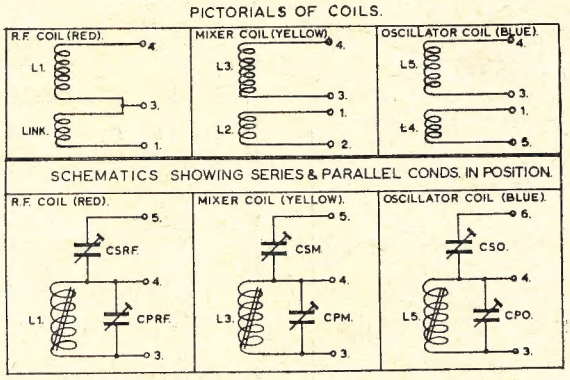
Band	Series Cond. in Osc.	Parallel Cond. in Osc.
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	30 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.

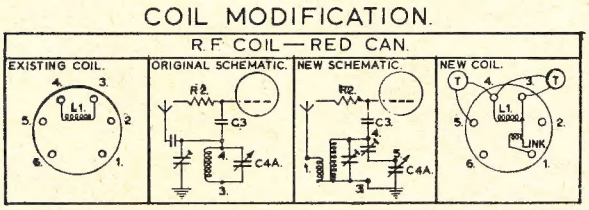
Note.—Use 3-30 pF. Philips beehive trimmers fixed values as required, e.g. 80 mx.

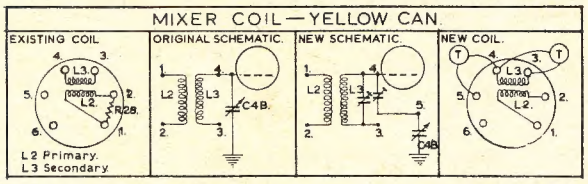
32. Remove R19 from the tag strip.

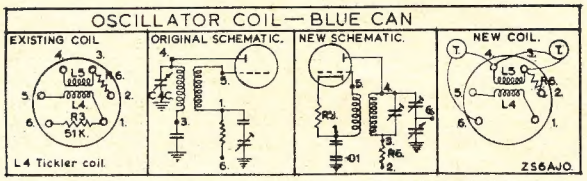
33. Remove the wire connecting pin 6 of the i.f. to R18 (510K) and replace with a longer lead from pin 6 of the i.f. to the far side of R18, i.e. facing the middle i.f.

34. Insert a 0.01 μF. condenser on the tage strip where R19 used to be and earth the other side.

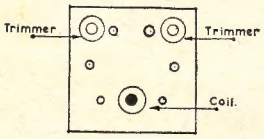




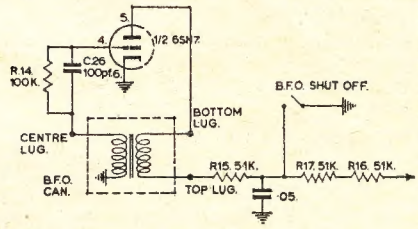




NOTE:- ALL COUNTING IS DONE ANTI-CLOCKWISE LOOKING FROM INSIDE THE COIL CAN. i.e. LOOKING AT THE PINS.



PICTORIAL



B.F.O. STAGE.

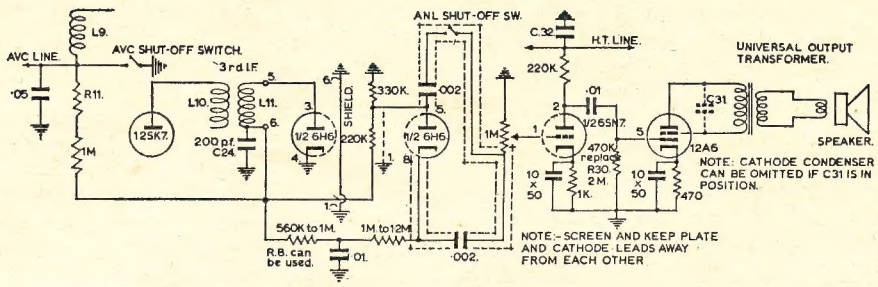
35. From R18 (on the side facing the middle i.f.), insert a 1 megohm resistor and solder it to R11, which you have lifted from ground (R11 is the 100K resistor on the tag-strip nearest to the first i.f. base, but actually comes from the second i.f.).

36. To shut off the a.v.c., insert a switch from the junction of R11 and the 0.05 μF. condenser (see C15A) to ground.

37. From pin 5 of the third i.f. run a lead to pin 3 of the 6H6 and earth pin 4 of the 6H6.

38. Run a copper shield between the pins of the 6H6, i.e. from pin 1 to pin 6 and earth both pins.

AVC — ANL and EXTRA AUDIO STAGE.



39. Remember to keep the plate and cathode leads of the a.n.l. **away from each other**, and if an a.n.l. shut-off switch is inserted, run separate screened leads as shown on the schematic. The return lead can be coupled directly to the volume control potentiometer.

40. From pin 6 of the third i.f. connect a 220K resistor to pin 5 of the 6H6, and connect a 330K resistor from pin 5 of the 6H6 to ground.

41. Connect a 1 megohm resistor from the junction of the 0.01 μF. condenser and R18 (or 560K resistor) and pin 8 of the 6H6, making sure that this resistor is on the cathode side of the shield on the 6H6.

42. Make up a screened lead with a 0.002 μF. condenser inside the shield and connect it to the volume control on the front panel and run it back to pin 1 of the 6SN7.

43. Insert a 220K resistor from pin 2 of the 6SN7 to C32 (h.t. line).

44. Connect a 1K resistor and a 10 μF. condenser between the cathode of the 6SN7 (pin 3) and ground.

45. Couple a 0.01 μF. condenser from pin 2 of the 6SN7 to pin 5 of the 12A6 and remove the grid resistor R20 (2 meg.) and replace it with a 470K resistor.

46. Replace R21 with a 470 ohm resistor in the cathode of the 12A6.

47. Mount a universal output transformer behind the b.f.o. can and couple it up.

48. Rewind or pad the b.f.o. coil up until it grid dips to 455 kc.

STEP-BY-STEP LINING UP

As the receiver is now a bandspread model for Amateur bands only, the usual signal generator is not accurate enough. Use the following equipment:

(a) A frequency standard, e.g. BC221.

(b) The shack receiver must be equipped with a b.f.o. (if it is possible two receivers will make matters much easier and quicker, the one set high and the other low).

(c) Station v.f.o.

(d) Output meter.

1. Set the first receiver with the BC221 455 kc. above the low end of the band, e.g. 7455 kc. and the other receiver 455 kc. higher than the top end of the band, e.g. 7755 kc.

2. Turn C4 (the main tuning condenser) to maximum, i.e. clockwise. This will be the 7 Mc. position and mark this position on the dial.

3. Zero beat the local oscillator of the Command receiver against receiver No. 1 by adjusting the parallel trimmer.

4. Turn C4 to minimum, i.e. anti-clockwise. Mark this position on the dial as 7300 kc.

5. Zero beat on receiver No. 2. Repeat steps 3 and 5 until perfect tracking is obtained and then leave the local oscillator severely alone.

6. Set the v.f.o. with the BC221 on 7 Mc.

7. Couple an output meter to the cathode of the last i.f. valve or the loudspeaker terminals. (An audio note must be on the input signal.)

8. Set the series trimmers on the Command receiver r.f. and mixer stages at the midway position.

9. Tune the r.f. and mixer stages with the parallel trimmers for maximum output.

10. Set the v.f.o. at 7300 kc. and peak the series trimmers. Repeat steps 9 and 10 until the output remains at its maximum across the entire band.

11. Peak the i.f's. at top and bottom and if self oscillation is experienced when peaking these i.f's., damp the primary of the last i.f. with a 50K to 100K resistor as described in step 18. ●

LINE-UP OSCILLATOR										
Band	80		40		20		15		10	
	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.
Local Oscillator	3,455	4,455	7,455	7,755	14,455	14,755	21,455	22,455	28,455	30,455
Dial Position	3,000	4,000	7,000	7,300	14,000	14,300	21,000	22,000	28,000	30,000
Peak Osc. Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.
LINE-UP R.F. AND MIXER										
Peak R.F. Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.
Peak Mixer Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.
R.F. Signal and Dial	3,000	4,000	7,000	7,300	14,000	14,300	21,000	22,000	28,000	30,000

Note: L. (Low) is maximum capacity, i.e. fully clockwise.
H. (High) is minimum capacity, i.e. fully anti-clockwise.
P.—Parallel trimmer condenser. S.—Series trimmer condenser.
When the above has been completed, calibrate the dial in kilocycles.

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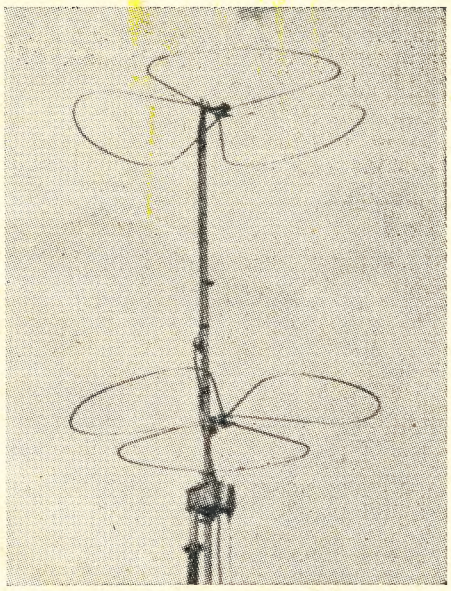
THE BIG WHEEL ON TWO*

Improved Omnidirection Coverage on 144 Mc. with Horizontal Polarisation

ROBERT H. MELLEN, W1IJD

and

CARL T. MILNER, W1FVY



FOR the two-metre buff, here is a new omnidirectional cloverleaf antenna with horizontal polarisation. Large size results in improved bandwidth and coverage over the popular halo, and gives superior anti-flutter properties in mobile operation. Singly or stacked, the Big Wheel is also a boon for local work from the home station.

Anyone who has been involved in local two-metre net operation knows that there are many times when the directivity of a beam antenna is a handicap, and some of its gain could be profitably sacrificed for good omnidirectional coverage. For the mobileer, an omnidirectional radiation pattern is a must. For him, there is only the choice of sticking with the vertical whip or, if he wishes to avoid cross polarisation with the rest of the fraternity, graduating to the halo or turnstile. In any event, there is a good case for the horizontally polarised omnidirectional antenna on two metres. The question is only what type best serves the purpose.

Halos and turnstiles are surely steps in the right direction. The halo, particularly, has one marked disadvantage.

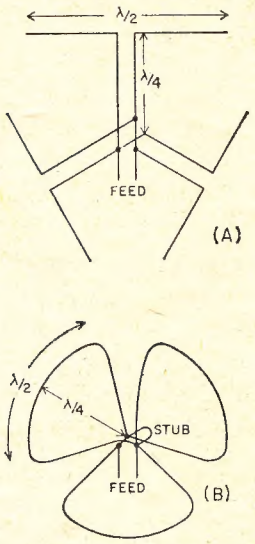


Fig. 1.—Development of the Big Wheel started with three half waves in phase, as shown at A. Despite poor matching initially, this configuration showed promise and evolved into the cloverleaf style at B. Each element of the cloverleaf is one wavelength long. Feed impedance is brought to 50 ohms through the use of a tuning stub.

It satisfies the polarisation requirement and has a fairly good pattern, but it suffers from small "capture area." This means less bandwidth and gain, and worse mobile flutter characteristics than are possible with antennae of larger size. The turnstile is somewhat better, but it is still a small antenna.

To study possible advantages of large size, we started experimenting with the old three-half-waves-in-phase type. This is a simple arrangement of three horizontal dipoles in a circle, fed in phase at the centre, as shown in Fig. 1A. Illustrations of this antenna are found in the literature but design details are lacking. This turns out to be a problem since, due to mutual coupling, both impedance and resonant frequency depend on the geometry. Thus the usual dipole formulae do not apply. Results of early tests of crude models of this antenna showed great promise, particularly for mobile use, despite poor matching.

The design shown here evolved not so much from trying to improve the matching properties, but simply to try something new. Instead of using the centre-connected transmission line, we decided to support the elements by feeders at each end instead of at the centre, as shown in B in Fig. 1. This proved to be a fortunate choice, as it resulted in simpler construction, better mechanical stability, and more easily adjustable electrical properties. Now, each element is a full-wave loop, and it can be bent to try out various shapes and diameters. The idea is the same as before, however. The half-wave portions of the loop at the rim serve as radiators, while the radial portions at each end serve as quarter-wave feeders. Don't try to figure out where one ends and the other begins!

In designing this antenna, the first step was to settle on the shape of the elements. Various configurations were tried ranging from the most compact arrangement, a wheel consisting of three pie-shaped elements with an over-all diameter of about three feet, to a huge cloverleaf with oval-shaped elements and an over-all diameter of almost five feet. As a result of these experiments, we found that compactness makes matching and current equalisation troublesome. Curiously, the radiation pattern is only slightly affected by the shape. For each of the elements there always remains a slight "front-to-back" ratio, roughly 3 db. Variations in the pattern of this amount are barely noticeable in ordinary use. This observed pattern is shown in Fig. 2.

The next step was to trim the elements to length and adjust the stub for best s.w.r. at the desired frequency. Since all elements are fed in parallel at the low-impedance point, the input impedance would normally be quite low. Each has a radiation resistance of about 30 ohms in this configuration, which would give only 10 ohms for the parallel combination. To match to a 50-ohm line, the conventional stub-tuner scheme was used. Element lengths are chosen so that the impedance is capacitive and the circuit is then tuned to resonance with an inductive stub to give an input impedance of 50 ohms at the centre frequency.

The design described here has an over-all diameter of four feet. It is no more critical or difficult to build than a three-element beam. Elements are made of ⅜" o.d. corrosion-resistant aluminium tube. The lengths are bent cold to the shape shown in Fig. 3. For

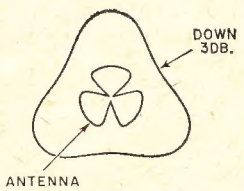


Fig. 2.—Performance of the cloverleaf array. Frequency response can be controlled over a wide range, depending on the shape of the elements and over-all size. The configuration described is usable over the entire band if centred near 146 Mc. There is a slight dip in the radiation pattern in back of each notch in the cloverleaf, but this is hardly noticeable in ordinary operation. In mobile work it is insignificant.

* Reprinted from "QST," Sept., 1961.

good performance over the band, 80" lengths are used. The bracket and remaining hardware are prepared according to Fig. 3, and the elements mounted. Wood dowels are used to plug the element ends to provide strength and seal against moisture. The tuning stub is then cut to 5" over-all length, bent to shape and mounted as shown. Finally, the transmission line is prepared and connected. Keep the leads short or the s.w.r. will suffer. After assembly the structure is checked for conformity to dimensions and is ready to go.

As shown in Fig. 2, the s.w.r. should be 1.2 or better over the band. The pattern should be uniform to within ±2 db.

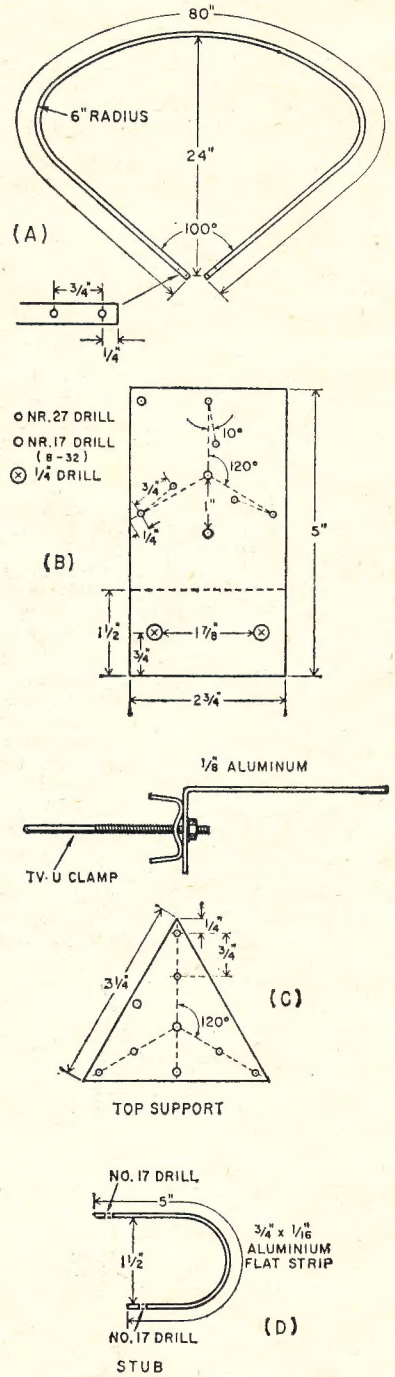
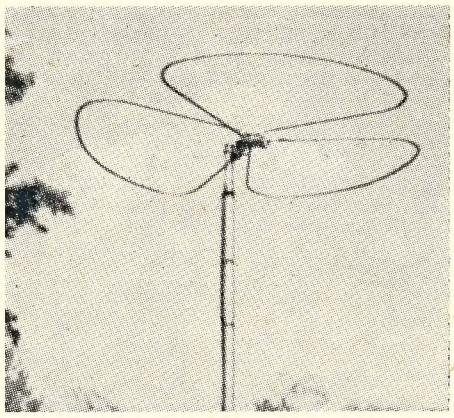


Fig. 3.—Structural details of the Big Wheel 2-metre array. One element is shown at A. A wood dowel 2 inches long is driven into each element to add strength. The grounded lower support is shown at B. It is bent down at a right angle to permit mounting to a vertical pipe with a t.v.-type U clamp. The triangular top support is shown at C, and the tuning stub at D. The array is fed with 50-ohm coax, the inner conductor of which is connected to the upper support. Brass screws (3/4 inch 6-32) are used to assemble the parts.

STACKING THE BIG WHEEL

Two of these antennae can be stacked for the home station with an increased array gain of about 4 db. To improve the radiation pattern, the stacked antennae can be staggered by 60 degrees.

Stacking increases the directivity only in the vertical plane, while horizontal polarisation and the omnidirectional pattern of the single antenna are preserved. This type of array is widely used in f.m., t.v. and beacon applications, where such properties are required. With the broad bandwidth and uncritical behaviour of the Big Wheel, it is not difficult to realise considerable stacking gain by adding more bays before reaching the point of diminishing returns. In fact, results can be achieved in all directions which compare favorably with a small beam in its best direction.



The 2-metre Big Wheel for mobile or fixed-station use.

Gain of a stacked array depends on both the number of bays and the spacing between them. In these experiments the optimum spacing of 5/8 wavelength was used. Two-bay arrays were tested, showing a gain over a dipole roughly equivalent to a two element Yagi, but in all directions. It appears that 4, 6 or even 8 bays might be used,† but the point of diminishing returns is rapidly reached, as the number of bays must be doubled for substantial gain and the length of mast required becomes a problem.

With a bay spacing of 5/8 wavelength it is convenient to use full-wavelength phasing lines of coax. At 146 Mc. 5/8 wavelength is approximately 50", while for coaxial line a full wavelength is about 53", due to the propagation factor of the line. The length of the coax is important, as both matching and phasing depend on it. The spacing is nominal, however, and it can be adjusted to make the phasing sections fit properly.

The arrangement for a two-bay antenna is shown in Fig. 4. A full wavelength of RG-11/U 75-ohm coax is used for the phasing section. It is driven by 50-ohm RG-8/U transmission line at a point 1/4 wavelength up from the bottom, to achieve proper impedance transformation. The two ends of the coax are out of phase. so **one** of the bays must be turned upside down to put the antenna currents in phase.

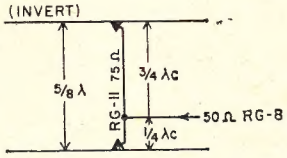


Fig. 4.—Stacking method for two Big Wheel antennae. Because of the propagation factor of coaxial line, an electrical full wavelength of coax is approximately 5/8 wavelength long. This is the optimum stacking dimension for dipoles. By using a 75-ohm phasing line the system may be fed at the point indicated with a 50-ohm transmission line. Note that one bay must be inverted to keep antenna currents in phase.

When the original 5" stubs were used, it was found that the point of minimum s.w.r. had shifted from 146 to 148 Mc., due to coupling between the bays. This was corrected by increasing the stub length from 5" to 6" total length. The resulting s.w.r. curve is almost identical to that of a single antenna. With the bays staggered 60 degrees on the mast the pattern variations are negligible. Gain is approximately 4 db. over a dipole.

For both mobile and fixed station, the Big Wheel has performed beyond our fondest hopes. Mobile results are particularly astonishing, as the troublesome rapid flutter is remarkably reduced. Our best testimonial was the occasion when one operator said he could not believe that such a strong. steady signal was coming from a moving car at such a great distance. At home it's a pleasure to be able to hear everyone in the Shoreline Net without continually fussing with a rotator. ●

† Extensive tests of the Big Wheel have been made by the Editor "QST", both at the home station and in the field. The single-bay cloverleaf array has given performance superior to any other single omnidirectional antenna yet tried, and the two-bay system is all that the authors claim. In portable work, particularly, it has been found that a two-bay Big Wheel brings in signals with a strength comparable to that achieved with small Yagis, yet it delivers this performance in all directions and over a wider frequency range than is obtainable with parasitic arrays. Tests are currently underway with a four-bay system and results will be reported at a later date. —W1HDQ.

☆

SAD STORY OF C.H.C./H.T.H.

Overheard recently one W telling another that he earned his H.T.H. Award in 1 hour 20 minutes flat during a C.H.C's. get-together in the States. I have no doubt that Clif Evans, K6BX, had high ideas and aims for this brainchild of his, but with the advent of so many Stateside C.H.C'ers. the award from the point of view of "standard of attainment" is at an all-time low.

For those who like to belong to "socials," it is no doubt a "worthy", but from a DXer's point of view it has little merit.

It is good to seek awards, but only the right ones. There are those who are obtained only by Amateur Radio's highest endeavour, and there are those who can be had for working a couple of stations and sending along 10-15 I.R.C.

There are those who provide some social status also. So let each Ham judge for himself.

Award hunting has now reached the stage where countless awards are available and it is pointless to continue stacking them into the bottom drawer.

73, Al, VK4SS, C.H.C./H.T.H.

Performance Tests on the Big Wheel 2-Metre Array*

Stacking Information and Results with Omnidirectional Antennae

IN the previous article W1IJD and W1FVY described a novel omnidirectional array for 144 Mc. mobile or fixed-station work. These fellows are now engaged in ice research in the Far North (at time of writing this), and there was not sufficient time for them to complete tests on stacked versions of the antenna before their scheduled departure, so the writer gladly took up where they left off. As is usual when one tries to get to meaningful numbers in connection with Amateur antennae (and by Amateur methods) this turned out to be no mean task.

On-the-air results are all that really count in evaluating the worth of antenna ideas for Amateurs. Precise measurement of pattern and gain are all but impossible, but if an antenna "has what it takes," protracted use of it under many differing conditions will show its superiority clearly. The "many" in the above sentence bears emphasis. Routine comparisons of various antennae can show widely different results. In fact, if they don't there is probably something wrong with the tester's methods. Reflections from ground, trees, buildings, hills, cars and the like add to or subtract from the direct signal to such an extent that "gain" figures taken by working stations and comparing signal reports show large variations from one station to the next. These are part of everyday v.h.f. communications, so the thing to do is to work many stations at various distances and directions with a given comparison set-up. Then, if you want to know for sure, you set up again in a different location and work another bunch. This is time-consuming, but interesting if one keeps a detailed log of the results.

The writer spent many hours at this sort of thing with the Mellen-Milner Big Wheel. Tests at the W1HDQ home location proved inconclusive, because of a side-hill test area, and trees, guy wires and towers in the way of anything that could be worked on readily. So, after the matching problems were worked out to our satisfaction, we took the collection of antennae and masts out to some of our favourite wide-open hilltops. The single-bay cloverleaf was mounted on a 15-foot mast. Two-bay and four-bay stacked arrays were tested on a 24-foot support. All were checked against the turnstile regularly used for mobile work. This put the turnstile in a seemingly unfavourable light, as it was used in its permanent position some 20" above and to the rear of the W1HDQ station wagon. The turnstile had established itself as an effective mobile antenna, however, so it was useful as a standard reference for checking results with the larger and higher arrays.

* Reprinted from "QST," Oct., 1961.

RESULTS

All told, around 100 different stations were worked or logged, and their signal strengths tabulated in terms of decibels above the readings obtained with the mobile turnstile. Care was taken to see that these stations were in various directions, at all possible distances, and well distributed throughout the active portion of the band. As expected, indications from these tests varied widely, but we feel that enough of them were made so that they are valid indications of what can be expected from various versions of the Big Wheel. It should be stressed that the margin credited to the single-bay Big Wheel over the turnstile is largely the result of the former having been mounted at considerably greater height. These tests were not intended to show the relative merits of the turnstile and Big Wheel; the turnstile was used merely to provide a reference against which all other set-ups could be compared.

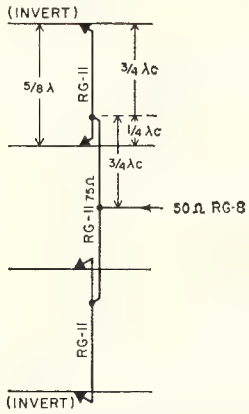


Fig. 5.—Feed system for a four-bay version of the Big Wheel 2-metre array. The two centre bays are the same side up, while the two outer bays are inverted. Bays are approximately 5/8 wavelength apart physically, which permits the use of full-wave phasing sections between them. The feed points of each pair are then fed through two 3/4-wave phasing sections, and a 50-ohm line at the midpoint sees an almost perfect match. The tuning stubs on the two inner bays (see previous article) are 7 inches long, while those on the outer bays are 6 inches.

The tabulation below includes only received signal strengths at W1HDQ/1. Many reports were taken from stations worked, but individual S metre readings varied so widely that no numerically-useful data could be obtained from them.

Average gain, 1-bay cloverleaf over turnstile	5.7 db.
Average gain, 2-bay over 1-bay	6.2 db.
Average gain, 4-bay over 1-bay	8.1 db.

The "gain" obtained with the 2-bay Big Wheel appears out of line, but more readings were taken with various versions of this array than any other, and we can assure the reader that the 2-bay version really does perform. Time and again, signals which could be heard only as faint whistles with a beat oscillator with a single-bay antenna jumped up to solid voice readability on the 2-bay version. These were not included in the tabulation, as the strength of the non-readable signals could not be established readily—but they do show that a stacked Big Wheel does what everyone wants an antenna to do: it brings in signals that cannot be heard with simpler antennae. It should be emphasised, however, that these are not antenna-range measurements, and should not be interpreted as such.

The stacked versions proved to be nothing short of spectacular on signals coming from extreme distances. On one occasion a signal from a New York area station was totally inaudible on the single-bay and the turnstile, yet it was a readable S3 on the 2-bay array. This was over an indirect hilly path of some 75 miles, and the test was made around 1 p.m. on a hot summer day, when tropospheric bending was at a minimum. Tests made at night often showed the 2-metre band loaded with weak signals, fading into and up out of the noise, when either the 2-bay or 4-bay stacks were switched to the receiver. Tuning the band with the turnstile and single-bay antennae under the same conditions would show only the strong signals of locals and near-locals. Many contacts were made at distances up to 100 miles or so from locations where long experience in the past has shown that some form of beam is a must for raising stations at anything like this distance.

We worked hard at trying to make the stacking of two pairs of antennae pay off as much gain as did the stacking of two single bays, but this would not quite "come off." The indicated gain from the latter is more than would be expected on the basis of stacking theory, but it was there, over and over again, in unmistakable fashion. This is probably due to the nature of v.h.f. propagation, wherein lowering and narrowing of the vertical pattern pays off in surprising fashion on some paths. You get this when you begin stacking. More stacking pays off, but not so spectacularly as the first step.

But a gain of 8 db. with an omnidirectional antenna is not to be sneezed at. You'd have to put up a pretty fair Yagi to equal this and remember the 4-bay Big Wheel gives the gain in **all directions.** This is not an unalloyed blessing, however. The stack of Big Wheels is fine for net activity and local rag-chewing, but its omnidirectional pattern and high gain can multiply QRM problems many fold. The 2-metre band becomes a mass of heterodynes when some tropospheric bending is present. Another feature on the debit side: interference from commercial signals in the v.h.f. range multiplies with an omnidirectional array of such beautifully broad frequency characteristics. We were forced to abandon work with the Big Wheels in one favourite location where there are two f.m. stations, a u.h.f. t.v. station, and various police and forestry-service re-

(Continued on Page 12)

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V.H.F. AERIAL MATERIALS*

D. A. S. DRYBROUGH, B.Sc. (BRS22550)

MOST Amateurs interested in v.h.f. or u.h.f. operation would like to experiment with aerials, knowing that they play a very important part in the overall performance of a station. However the availability of cheap and effective commercially-made beams may well have discouraged some from taking up this aspect of station design, especially where a fair amount of "plumbing" appears to be involved. Not everyone thrives on the bending, shaping and fixing of aluminium tubing, such as is called for in most v.h.f. or u.h.f. aerial designs, and it is the purpose of this article to point out that such skills are not really necessary because other, more easily handled, and cheaper materials can be used for most aerial experimental work at these frequencies.

The idea of using other materials occurred to the writer during a visit to the Lichfield I.T.A. station some years ago when the engineer-guide showed the party a spare element for the aerial then in use. It was galvanised! If such a finish was considered suitable for a high power v.h.f. t.v. aerial, then it would surely be worth investigating for Amateur use. A check was therefore made into the relative merits of various materials for use as v.h.f. aerial elements with interesting —and cheering—results.

The radiating efficiency of an aerial can be defined as the ratio of the power radiated by it to the power supplied to it and is sometimes quoted as a percentage. The difference between the radiated power (Pr) and the input power (Pin) is the power lost in the aerial itself (P1). The aerial can therefore be given the equivalent circuit shown in Fig. 1 (b) because power in such a circuit can be lost only in a resistive element and both power-dissipating mechanisms in the aerial can be replaced by resistors, Rr and R1, such that together they dissipate the same total power as the actual aerial does. Rr, proportional to the power radiated by the aerial, is then the "effective radiation resistance" of the aerial while R1, proportional to the power lost in the aerial elements, is the "effective loss resistance". When considering the relative efficiencies of various materials as aerial elements, Amateurs are vitally interested in the behaviour of the "effective loss resistance" (R1), as defined above, of an aerial system when the materials of which it is made are changed.

Starting from the fact that most aerials are made up of arrangements of lengths of metal of more or less uniform cross-sectional area the "d.c." resistance of such a length, say L, with area A, can be calculated by applying the formula:

$$Rdc = (L \div A) \times \text{resistivity},$$

where resistivity is the resistance per unit length and unit area for the material involved, usually given in ohms per centimetre cube. Taking L as a half-wavelength at 145 Mc. and A as the area of ⅛" diameter rod, typical values of Rdc are as follows:

Metal	Resistivity (ohms per cm. tube)	Resistance
Copper	1.72×10^{-6}	0.0023 ohm
Aluminium	2.83×10^{-6}	0.0037 ohm
Zinc	5.90×10^{-6}	0.0077 ohm
Brass	7.50×10^{-6}	0.0098 ohm

All these are negligible with respect to the radiation resistance (Rr) of a half-wave dipole which is about 65 ohms for the chosen element diameter, but this is not the whole story. As the frequency of the current flowing in the material is increased from "zero frequency," or d.c., an effect, called the "skin effect," modifies the current distribution in the cross-section of the conductor, tending to concentrate it more and more in its outer skin as the frequency rises—hence its name. This reduces the working area of the conductor and so increases its effective

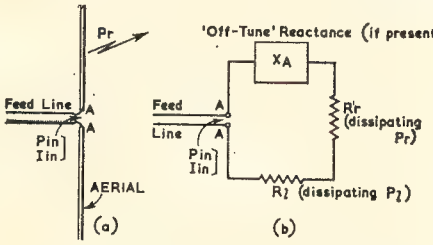


Fig. 1. Dipole aerial and equivalent circuit.

resistance. At v.h.f. the skin carrying most of the current becomes very thin indeed, less than half a "thou" (0.0005 inch), and is proportional to the square root of the conductor resistivity. Thus the skin is thicker for the metals with the higher resistivities, making their "r.f." resistance less relative to their "d.c." resistance than for the better conductors like copper and their use at v.h.f. less futile than might be assumed from their resistivities. The "r.f." resistance (R^1rf) for a current which is constant along the length of the half-wave element is found to be approximately as follows:

Metal	Skin Depth	R^1rf-R.F. Resistance	Ratio of R^1rf to Rdc
Copper	0.00022"	0.34 ohm	148
Alumin.	0.00028"	0.41 ohm	111
Zinc	0.00040"	0.60 ohm	78
Brass	0.00045"	0.68 ohm	69

These "r.f." resistances cannot yet be used to calculate the efficiency of a dipole aerial because such an aerial does not carry a current which is uniform along its length. The current distribution for a half-wave dipole is normally taken to be half a sine wave, having its maximum at the centre of the aerial, and so equal to Iin in Fig. 1. The average current and also the effective loss must therefore be less than for the constant current case considered above and integration of the power loss over the whole aerial results in the value 0.5 I^2in R^1rf or I^2in x 0.5 R^1rf. Since the input current to the aerial is Iin it follows that the true effective loss resistance, R1, for a half-wave dipol is 0.5 R^1rf. This value, and the corresponding radiation efficiency and aerial loss in db., is shown for the selected metals in the following table:

Metal	R1	Radiation Efficiency	Loss due to Aerial Elements
Copper	0.17 ohm	99.75%	0.011 db.
Alumin.	0.20 ohm	99.7%	0.013 db.
Zinc	0.30 ohm	99.5%	0.022 db.
Brass	0.34 ohm	99.4%	0.026 db.

It should be noted that these results are for ⅛" diameter elements, not the more usual ½" diameter tubes. Such larger tubes would result in still lower "r.f." resistances although the "d.c." resistance of very thin-walled tubes could be greater than those quoted above for ⅛" diameter rods.

Simple formulae for those who wish to calculate skin depth and R^1rf for themselves are as follows:

For solid rods,

$$R^1rf = Rdc \times \frac{\text{diameter in inches}}{4 \times \text{skin depth in inches}}$$

For thin-wall tubes,

$$R^1rf = Rdc \times \frac{\text{wall thickness in inches}}{\text{skin depth in inches}}$$

Skin depth, at v.h.f., in inches =

$$2\sqrt[2]{a \div \mu F}$$

where a is resistivity in ohms per cm. cube.
μ is permeability, taken as 1 for non-ferrous materials.
and F is frequency in cycles per second.

Having theoretically established that quite thin elements of a variety of metals could be used for v.h.f. and u.h.f. aerials, the next step was the choice of a suitably cheap, easily available and readily worked material with which to experiment.

Zinc wire is a rare commodity, of course, but a standard line in agricultural ironmongers is galvanised fencing wire in various gauges. This is iron wire with a very heavy zinc coating, entirely adequate to act as a zinc conductor at v.h.f. and u.h.f.; it costs only about 1/6 per pound. The length to the pound for 10 s.w.g. wire, which has a diameter a little over ⅛", is more than 22 ft., making the cost just over ¾d. a foot. The wire can readily be shaped and soldered and is self-supporting for lengths of at least quarter-wave at 145 Mc. It can be fixed to wooden supports by means of staples and this construction is adequate for loft arrays. For Yagis a boom is required and ⅜" or ½" galvanised tubing can be used. This can then be drilled transversely at the appropriate element spacings for the

* Reprinted from R.S.G.B. "Bulletin," June, 1962.

⅛" diameter elements which can be fixed in position by soldering, using a normal, medium-sized, electric iron. construction results in a light, yet strong, aerial suitable for fixed or mobile application.

This cheap material has been used by the writer for a wide range of aerials with good results. The most spectacular perhaps, was a 10-turn, bi-directional helical aerial. This was supported from a 10 ft. 6 in. long wooden beam. Each turn was 26" diameter, spaced 14" from the next turn, and the aerial was split in the centre for connection to the feed line through a balun. The total conductor length used was about 69 ft.—think of coiling that amount of ½" diameter aluminium tubing into a smooth helix! On this aerial, I1SVS was heard in the summer of 1959 on sporadic E—a fluke of course, but useful for proving that the aerial did work!

Slot aerials are especially easy to make and mount and another bi-directional array consisting of two such slots, stacked one above the other on a wooden pole some 20 ft. high, was used with good results for an extended period. Folded dipoles are also convenient and a pair in a broadside or "flat top" array was used for a spell in the loft. Yagis of various sizes have also been tried. The outside aerial at the moment is a four-element, wide-spaced unit, supported by a bamboo pole about 7 ft. long which is cleated to a wall so that the Yagi is about 12 ft. above ground. Even in the writer's rather poor QTH this aerial has performed well and has weathered many high winds in the two years it has been erected. Since January 1961, 40 counties and eight countries have been heard using it, indicating that its performance has not yet been affected by corrosion.

A word of caution is necessary about the substitution of the smaller diameter elements for other sizes in published designs. The length of ⅛" diameter rod required for a half-wave dipole is about 0.956 wavelength (exact half wavelength) instead of about 0.94 wavelength (exact half wavelength) for ½" diameter elements, an increase in length of about 1.7 per cent. This correction can be applied to parasitic elements of the same order of length in Yagi arrays but element spacings need not be altered.

The thinner elements exhibit a narrower bandwidth and this may become significant, even for the relatively narrow Amateur bands, in the case of close-spaced Yagis or other aerials which have a very low impedance feed point.

Very little attention has been paid to the 430 Mc. band and higher bands, mainly because the writer has not yet operated in any band higher than 144 Mc., but, theoretically at least, the fencing wire should be even better at the higher frequencies. This arises because, with increasing frequency, the "r.f." resistance of a given length of material rises only in proportion to the square root of frequency, whereas the length required for a half-wave dipole decreases inversely as the frequency.

The "r.f." resistance of a dipole therefore decreases in inverse proportion to the square root of frequency, and is therefore only about $1/\sqrt[2]{3}$ or 0.58 of the 145 Mc. figure at 430 Mc.

The radiating efficiencies of such dipoles, constructed of the zinc-coated metal, should be indistinguishable from those of aerials using larger aluminium or copper elements and the diameter of ⅛" should be mechanically adequate for all normal element lengths and perhaps even for mounting booms. It is hoped to try such an array shortly when a new 430 Mc. converter has been constructed. ●

REFERENCES

"Radio Engineering," E. K. Sandeman.
"Radio Engineers' Handbook," F. E. Terman.

PERFORMANCE TESTS

(Continued from Page 9)

lays. These non-Amateur stations give little, if any, trouble in this fine mountain spot when a Yagi antenna is used.

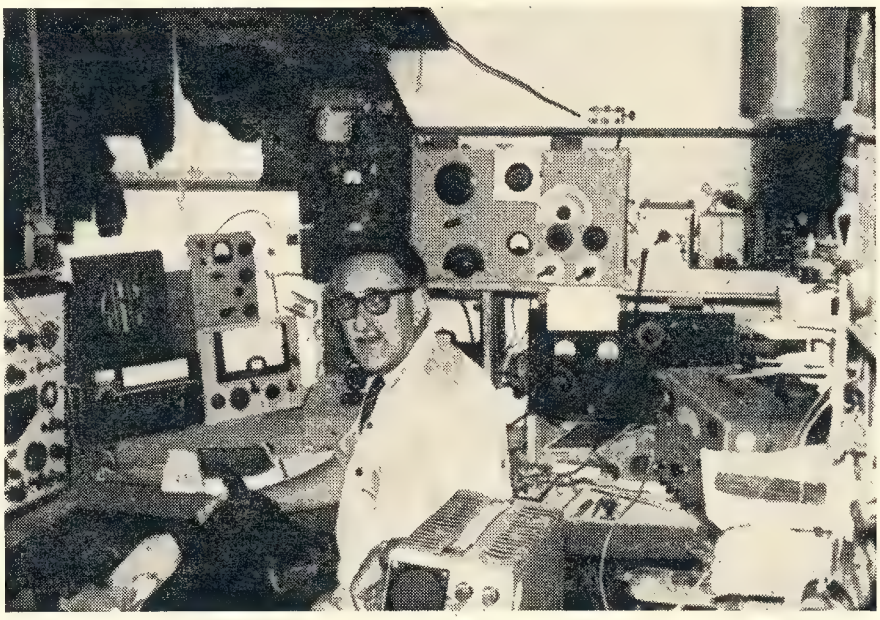
The Big Wheel should prove a blessing in many types of 2-metre work, however. If you can take the jibes of pedestrians and passing motorists, a single Big Wheel should give you the best 2-metre mobile signal in your area. If you live in a spot where you can put up only one antenna, and rotators are out. a stacked Big Wheel will make the 2-metre band a lot more interesting for you than it ever was before.

Reports following the appearance of the Big Wheel in "QST" indicate some confusion about the construction of the antenna. Referring to Fig. 3 (previous article), each element (A) runs from the grounded plate (B) to the triangular plate (C).

These two plates are mounted one above the other, at a spacing determined principally by available insulators. Ceramic standoffs 1" to 1½" long are suitable. The Johnson Steatite cone, part 135-501, 1" long, with 8-32 threads, is good. The designers also used a bakelite block 1" long, with molded-in brass inserts, though we do not have a part name or number for this.

The tuning stub (D) is shown bent around a ¾" radius, but this is not critical. Note that the stub length is 5" for a single bay. For a stacked 2-bay system the stubs should be 6" long. In a 4-bay array the top and bottom stubs are 6" and the inner pair 7". For a single bay mounted above a metal car top for mobile work, a 6" stub may be needed. —E.P.T.

VK2AHM—R. J. WHYTE



R. J. (Jeff) Whyte, VK2AHM, is seen in his shack with the equipment used during the 1962 Remembrance Day Contest.

From the left we have, firstly, a Racal RA-17-L receiver, surmounted by a barely discernable Collins TCS transmitter. These were used on 160 metres. Second in line is a Drake 2B receiver; followed by the 32 volt operated receiver, comprising a Geloso front-end (much modified) feeding into a BC453—again with changes to suit 32 volts. Just visible above his shoulder is the dial of the main, remotely controlled v.f.o. (Older Hams will remember VK2AHM's "Steco" v.f.o., using EF50 tubes. This tunes the latest model.) Next to his head is the main transmitter, with an 813 switching from 10 to 80 metres. To the right again is the modulator for same. A pair of 811s, zero bias. Below is the 32 volt operated transmitter, a pair of 807s used for both a.m. and d.s.b.

Above VK2AHM's head is the terminal panel for the eight vee beams and the rhombic that are in general use. Above again, an antenna tuning device and a pair of speakers.

Only a portion of the control panel is visible on the bench. Once switches are thrown there, the requisite receiver and/or transmitter comes under the control of a single, foot-operated switch.

All the a.c. operated gear is powered by a diesel-driven alternator.

VK2AHM concludes, "The Racal and Collins affairs, I regret to say, are not mine."

MODERN RECEIVER FOR THE AMATEUR BANDS*

Further Circuit Points, Construction and Setting Up

PART TWO

J. D. HEYS, G3BDQ

• The first part of this interesting practical article appeared in our October 1962 issue, and it will be necessary to refer back to it to follow the discussion here, which concludes the treatment. —Editor.

BEFORE proceeding further, attention is drawn to the following amendments to Part One of this article: In the table of values on page 10 (Oct. '62 "A.R.") R7 (1,000 ohms) and R30 (250K, 1w.) should have been included. Also, on page 13, fourth paragraph, the tuning range of the variable frequency oscillator ought, of course, to have been given as 1955-2465 Kc., and not as stated.

As already explained in Part One, provision has been made for both carrier and product detection. When SW3a is in the s.s.b./c.w. position (see Fig. 2, pages 10 and 11, Oct. issue), h.t. is applied to the 7360 valve (V8). The secondary of the final i.f. transformer IFT4 is also connected to one of the beam-deflecting electrodes (pin 8—see Fig. 2, V8) of the product detector via SW3b. Use is made once again of the cathode tap oscillator circuit and the 7360 valve provides its own b.f.o. injection. L11 was made from a midget LW aerial coil of the type sold for crystal sets, and a few turns were removed to make it tune to 460 kc. when using the capacitors indicated (C65 and C66).

An OA79 semi-conductor diode, D1, is connected from the control grid of V8 to earth and this prevents the grid approaching earth potential. (Without this diode there would be considerable distortion.) Audio output from pin 6 of V8 is taken to the audio gain control R40 through a simple r.f. filter comprising R42, C54 and C55.

With SW3 in the a.m. position V7b operates as an infinite impedance detector, which is really a kind of cathode follower. The blocking capacitor C38 is necessary owing to the possibility of h.t. being applied to the grid of V7b should SW3 not be of the break-before-make type. Audio output from the cathode of V7b also runs through the r.f. filter network.

The grid and anode of V7a are strapped and connected to the secondary of IFT4 through a blocking capacitor C37. A fixed bias derived from h.t. is applied to the cathode of V7a to prevent operation of the a.v.c. circuit when receiving weak signals. The time constant of the a.v.c. system is arranged for a slow decay which enables satisfactory reception of s.s.b. and c.w. signals and renders S meter readings of these fluctuating signals an easy matter.

THE OUTPUT STAGE

The usual precaution of running leads to and from the a.f. gain potentiometer R40 in shielded and earthed wires is observed to prevent instability and hum. The triode section of V9 is a normal voltage amplifier which is R.C. coupled to the pentode control grid. By using a 500-ohm potentiometer R35 in parallel with R36, it is possible to take off a positive reference voltage for the S meter circuit. This voltage should be equal to the no-signal cathode voltage of V6, which is about 2 volts. Under these conditions the S meter will read zero, although in practice it is better to set R35 to give a meter reading of S2 for more realistic reporting. Signals strong enough to overcome the fixed a.v.c. bias on V7a will cause a reduction in the voltage on V6 cathode and bring up the S meter. R41 across the meter enables the operator to set things so that the strongest signal likely to be encountered cannot pin the needle against its stop.

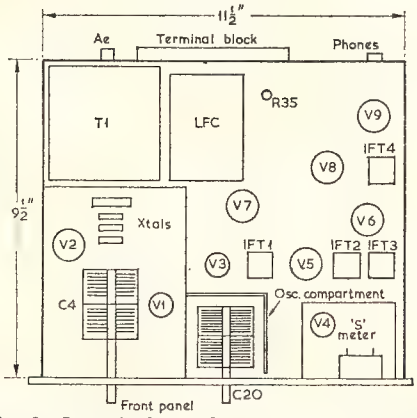


Fig. 3.—Layout above chassis and arrangement of the main items in the G3BDQ receiver—compare with one of the photographs. This drawing is not to scale and is intended for suggestion only.

In the circuit diagram (Fig. 2) the headphones and speaker are arranged to operate together. Should phones-only reception be required a shorting switch can be wired across the output transformer secondary. R34 limits the anode current of V9 and whilst hardly affecting the power output, greatly reduces the heat dissipation of the valve.

POWER SUPPLY

A C-core mains transformer acquired cheaply on the surplus market provides power for the receiver; this type of fully screened transformer seems to be much more reliable than the normal drop-through variety and the writer has never had one break down. The 5-volt rectifier filament winding is not used because the silicon diodes D2 and D3 provide h.t. rectification and this all helps to lighten the load on the primary of T1. After several hours' operation the transformer remains cold to the touch. C67 and C68 are high voltage disc ceramic capacitors and help to reduce any mains borne interference. Two one-amp. fuses are used on the input side and a 200 mA. pea bulb serves to fuse the d.c. output. This also affords some protection to the silicon diodes should an accidental short circuit occur.

Two 6.3 volt heater windings are used, one for each half of the total current load. By having a choke input smoothing circuit the output voltage is 200v. which is adequate for the valve types used in the receiver, and regulation is improved. SW3d and SW3e are wired to give "Off" and "Standby" switch positions, centre tap switching being employed.

CONSTRUCTION

The receiver is built around a vented cabinet measuring 13" x 9" x 10" deep. This item, together with a matching 2" deep aluminium chassis and a special ⅛" aluminium panel, completes the cabinet. This type of cabinet is perforated for approximately two-thirds of the total top and side areas. If ordering a similar cabinet it would be as well to ask for a 1½" slot to be cut out at the rear to allow easy access to the terminal block and aerial socket.

Side brackets were fitted to strengthen the chassis assembly and to minimise panel movement. Fig. 3 shows the location of the main components above the chassis, and it will be seen that despite the bulk of the mains transformer and smoothing choke there is no crowding—and see rear view photograph. This can be partly explained by having worked in three dimensions, the front-end and Q multiplier units being "above deck". A large section of the chassis beneath the front end unit was cut away to allow easy access to the cores of the pre-selector coils.

The underside view of the receiver reveals a U-shaped aluminium screen behind which are housed the detector circuits and SW3. It is important that the b.f.o. wiring be kept within this screen to prevent b.f.o. voltages leaking back ahead of the product detector. Should this happen it will give rise to a considerable S meter reading when the b.f.o. is running.

Normal practices should be observed when wiring the receiver. Short direct leads, and the positioning of resistors and capacitors parallel to the chassis sides all help to prevent a rat's-nest appearance. Since the receiver was built some small 0.1 μF. ceramic capacitors have become available, and these could conveniently replace the somewhat larger paper types used.

A word perhaps should be said regarding the finish and appearance of the front panel. Many Amateurs produce

* Reprinted from "The Short Wave Magazine," July, 1962.

efficient and reliable equipment which is unfortunately spoiled by an untidy panel layout. The first consideration is the main tuning dial. Space was at a premium when designing this receiver so thoughts of horizontally scaled slide rule dials were dismissed and a Muirhead instrument vernier dial and slow motion assembly was used. This item is available on the surplus market at a small fraction of the cost of more showy yet often less effective dials. With the Muirhead, logging positions to one part in 1,000 can be noted, and the action is silky and positive with no trace of backlash.

The remaining controls are arranged along horizontal lines and help to give (what is hoped is) the professional touch to a piece of home-built equipment. Chrome-plated bolt heads and lettering transfers add finish to the general appearance.

INITIAL TESTING

Assuming that the front end unit has been built along the lines suggested, and tested, it can be fixed into place on the main chassis. The second mixer and i.f. stages can now be tested, and for this purpose an old BC453 or "Q-Fiver" may be pressed into service. With only V1, V2 and V3 in position the BC453 is loosely coupled to V3 anode and tuned to 460 kc. Signals should be heard, and the top band tuning range is best suited for this operation, there being a number of identifiable stations on at all times. If all is well, V5 can be inserted and the BC453 coupled in turn to its anode. Most i.f. transformers sold these days are pre-tuned to 460 kc. or 465 kc. and very little adjustment of their cores should be needed. If any instability is noticed this must be righted before proceeding further.

V6 is tested similarly, and you must remember to keep backing off the gain of the BC453 as you work along the i.f. strip! It may be that the top-coupled windings of IFT2 and IFT3 cannot be pulled on to frequency with core adjustments. This is because i.f. transformers are designed to work into normal valve inter-electrode capacities, and should this be the case some extra capacity will be required across the i.f. transformer windings in question.

V7a, V7b and V9 should work satisfactorily if they are wired correctly and no special test procedures are needed. The b.f.o. circuit must be tuned so that at mid-setting of C65 (pitch control) it oscillates exactly at the i.f. of 460 kc. Once more the "Q-Fiver" can be used to achieve this.

It should now be possible to use the receiver on an aerial and there only remains the correct setting up of the S meter circuit and the testing of the Q multiplier. The latter must be tuned to the centre of the i.f. passband by adjustment of its coil core and by the pre-set capacitor C47. V4 should just go into oscillation at one end of the track of R33. If it fails to oscillate the values of R30 and R31 may be changed to increase the anode voltage of the 6CW4 valve.

A point not to be overlooked is that the receiver is designed to work with a low impedance aerial input. This may entail the use of an a.t.u. should the station aerial be a long wire or the proverbial "piece of wet string". The receiver will certainly work with a bit of wire tucked into its input socket, but first class results cannot be expected when used in this way.

CONCLUSION

A muting system has not been incorporated in the design as shown here, for most Amateurs have their own individual send/receive systems and can adapt the circuit to suit their particular station switching arrangements.

Although many receivers have noise-limiting devices or circuits, the writer has never found it necessary to use them at his QTH except when operating on ten metres or the v.h.f. bands. If the constructor has a particularly noisy location there are many effective and tried circuits which could easily be incorporated in the design.

Whether the whole receiver is constructed or whether instead only certain sections or ideas are borrowed from this article, the writer feels sure that the results obtained will be well worth the effort. Only the usual hand tools were used for the constructional work and a small square-topped wooden stool served as a workbench. This was because of the normal state of the real workbench, it being cluttered with numerous pieces of gear finished, unfinished or abandoned!

The completed receiver has now taken over the function of main station receiver; the trusty AR88 has been relegated to stand-by and other secondary uses. ●

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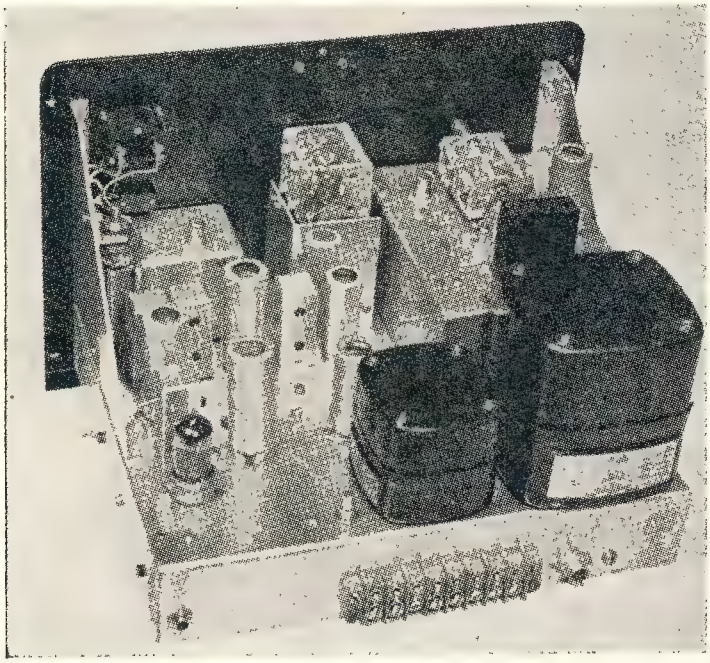
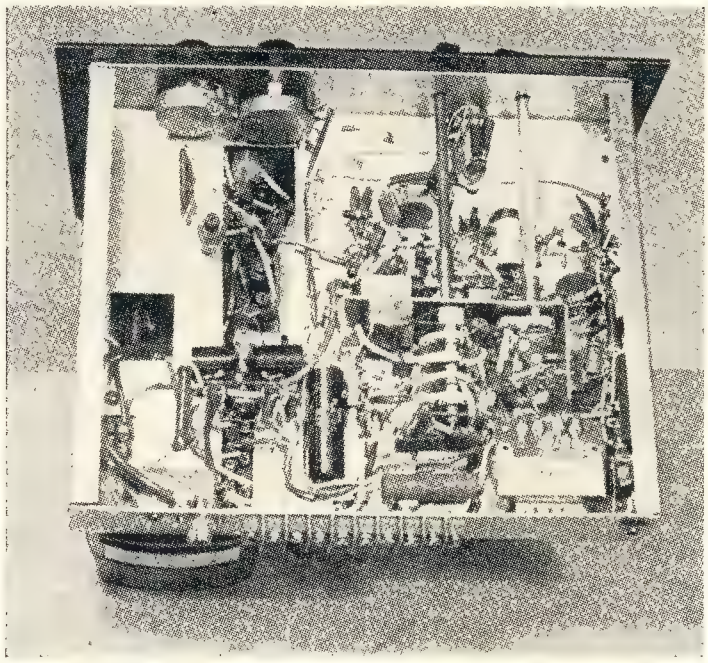


Rear view of the 9-valve double-conversion Amateur-band receiver designed and built by G3BDQ. The C-core transformer and choke are both inexpensive surplus items. All parts used, including the latest valves incorporated in this design, are catalogue items obtainable from Amateur Radio supply houses.



Underside view of the Amateur-band receiver, showing screened compartment for the product detector and b.f.o. circuitry, using a 7360 in this position. Extension rods connect the function switch (SW3 in the main circuit) and the b.f.o. control with their knobs on the front panel. Output transformer T2 is in lower right-hand corner of the chassis, and the pea-bulb serves as an h.t. fuse.

AN EASY WAY TO SHIFT COMMUNITY CRYSTALS

FOR many years now, large quantities of crystals have been available from disposals sources at relatively cheap prices. Many of these have been pounced upon by v.h.f. enthusiastics, particularly those with frequencies between 6 and 9 Mc., and used in converters and transmitters.

With the large amount of activity by stations using crystal-locked transmitters, particularly on 144 Mc., it is quite noticeable that a large number of Amateurs possess crystals on the so-called "community" frequencies. A good example of this is the 8036.25 kc. crystals producing output on 144.6525 Mc. in the two metre band.

Several Amateurs have successfully ground, or etched, these crystals to **higher** frequencies. But the majority of owners either put up with QRM. or put the crystal aside in favour of another which produces output on a clearer frequency.

The obvious answer to this would seem to be to use v.f.o. or v.x.o. control and these methods have much to recommend them.

However, another method of frequency shifting can be used quite successfully. This is the adding of lead, "Brasso," "Silvo," etc., to the surface of the quartz crystal slab. Although this method **lowers** the frequency of operation, it has several advantages over the grinding or etching methods.

(1) If it does not work, you just scrub the crystal slab in warm water and it will revert to its original frequency, none the worse for wear (unless of course you have been clumsy enough to break it).

(2) If the new frequency becomes inhabited by stronger stations, you can easily shift frequency again to another clear (?) spot.

(3) If, when trying to put the crystal on a specific net frequency, you go too far, all you have to do is wash the crystal and start again.

About the only disadvantage is that over a period of time—something over one to two years—the crystal may drift slightly in frequency, although one of my crystals has apparently remained stable over a period of at least two years.

For relatively large excursions in frequency—up to 300 Kc. on 144 Mc. using an 8 Mc. DC11 holder crystal (slightly less with smaller crystals such as the FT243)—"Brasso" or "Silvo', etc., seems to be best.

After pulling the slab out of the holder, it is advisable to wash it thoroughly with a tooth-brush and warm water. Do not use soap because it is difficult to remove completely when drying the slab, and it may have peculiar effects in the way of frequency drift.

After drying thoroughly with a lint-free cloth, apply a coat of "Brasso". etc., to one side. Allow to dry for several minutes and then polish with a cloth.

Then place the slab back into the holder and check the frequency. If it won't oscillate, take it out again and polish some more, adding more "Brasso" if necessary.

Too thick a coat may also retard oscillation and it may be necessary to wash the slab and start again. This will also be necessary if the crystal oscillates on two frequencies. However, nine times out of ten the crystal will work satisfactorily at the first attempt

If you want to move it slightly lower in frequency, more polishing of the existing coat will do the trick. This seems to hold true even after a period of several months. But, if the frequency is too low, it will be necessary to wash the crystal slab clean and then apply a lighter coating of "Brasso", etc.

Most of my crystals have operated on numerous frequencies over the last 2½ years, but the current resultant frequencies on two metres are 144.440 Mc. for a crystal normally producing output on the "community" frequency of 144.6525 Mc., and 144.097 Mc. for a crystal normally on 144.1825 Mc.

If it is only required to lower the frequency of operation a few kc. on the output frequency, it seems preferable to use lead from a soft pencil, solder, etc., and apply short strokes to the centre of the crystal slab.

In my case a crystal on 7940 kc. was etched to a frequency slightly higher than that required to produce output on the desired net frequency of 144.500 Mc., and then brought down to zero beat by applying short strokes from a soft—4B—lead pencil.

These methods of shifting crystal frequencies may seem strange, but they have been used for many years in various forms, and they do leave large margins for error.

I hope that a number of v.h.f. Amateurs read this article and try the methods outlined. If so, maybe there will be fewer pile-ups on the "community" frequencies.

See you on "two" on "Brasso" control.

—Bill Roper, VK3ARZ.

☆

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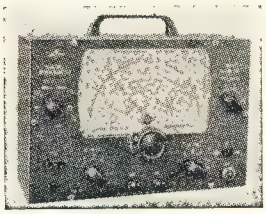

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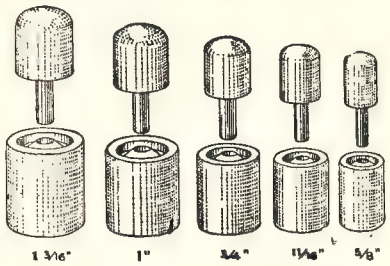

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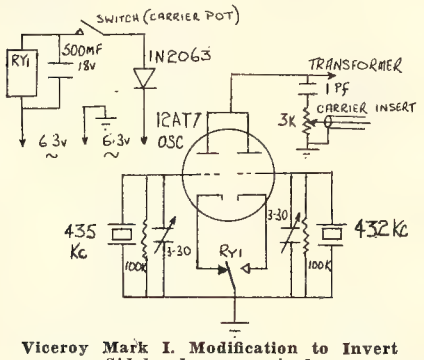
SIDEBAND TOPICS—*BUD POUNSETT,* VK2AQJ*

VICEROY AGAIN

If you own a Viceroy transmitter Mk. I. and wish that you could change sidebands, here is the answer to your problem, supplied by Allan Crewther, VK3SM.



Viceroy Mark I. Modification to Invert Sideband as required

Parts required:—

1 Carrier insertion pot., 3K, with push-pull switch, 1 make contact (see text).
1 100K ½w. resistor.
1 3/30 pF. Philips' trimmer.
1 S.p.d.t. relay (unit out of Command tx is suitable).
1 3-tag resistor strip with 1 earth.
1 Rectifier IN2093 or equivalent.
1 Condenser, 500 μF. 18v. d.c.w.
2 Crystals, FT241 Chan. 33 or 34.

THEORY

The crystal filter in this unit operates normally by selecting the lower sideband of a 435 kc. crystal oscillator. If this oscillator is changed to 432 kc., the same filter will select the upper sideband and sdieband inversion will result. (Note the virtual carrier frequency will be lowered 3 kc.)

This change of frequency can be easily obtained by using the spare section of the 12AU7 oscillator valve in the Mk. I. version of the transmitter, as shown in the schematic.

The method is as follows:—

(1) Mount the relay by drilling two holes for the mounting in the rear lip of the chassis near the crystal oscillator section on the right side of the unit and as close to the deck as possible without fouling any wiring.

(2) Remove the earth from the cathode of the existing tube and connect cathode to the normally-made contact of the relay. Earth the master spring and connect the cathode of the new tube section to the normally open spring.

(3) Mount the crystal socket on a stand-off directly above the tube on the rear lip of the chassis. Connect one terminal to grid of new section and other terminal to earth. Also connect 100K resistor and 3-30 pF. condenser in parallel.

(4) Join the two plate connections together.

(5) As there are two 6.3v. filament connections to the chassis, check the phasing of these so that 12.6v. is available across the two.

(6) Connect (using earthed screened wire) the 6.3v. that supplies the final, to one terminal of the relay coil.

(7) Remove the 2K carrier insertion pot and replace with the new unit complete with switch. Wire the pot. the same as the one removed.

(8) Connect the second terminal of relay to one terminal of the switch (use earthed screened wire. I soldered mine to the chassis at about 3" centres round the left hand edge of the chassis. This keeps it well out of any h.f. fields.)

(9) Mount the resistor strip on the front of the chassis under the mounting screw at the right of the compartment.

(10) Connect the second terminal of the switch to an insulated terminal and then fit the rectifier between this terminal and the other 6.3v. fil. feed-through condenser.

(11) Run a second screened wire (soldered to the chassis) from the first terminal of the relay to the second insulated terminal of the terminal strip.

(12) Connect the 500 μF. condenser across the two terminals of this strip (check polarity).

(13) Fit the new oscillator crystal, and new filter crystal in parallel with the 435 kc. crystal in the filter.

(14) Connect power and check the normal sideband, pull the carrier insertion pot. to invert the sideband. (Some FT241 crystals will not oscillate and I have changed the oscillator valve to a 12AT7.)

I had difficulty getting a 3K pot. with switch, so I obtained a Ducon 500K with switch and a 3K Ducon tab. pot. and then changed elements. takes about five minutes.

Checks made on the air using a channel 33 crystal, gave good reports on quality and sideband suppression although the frequency is theoretically slightly low. Similarly a channel 34 is slightly high, but either should work fairly well.

S.S.B. CONTEST

The week-end of March 30/31 has been set aside for the popular annual "CQ" World-Wide S.S.B. Contest. At the time of writing, no details are available of this event. However, I should have the information very soon. If you are interested in participating in this shindig, you have just four weeks left in which to get your station operating at top efficiency. The special "CQ" log forms and a copy of the rules will be available on receipt of a stamped addressed envelope. Please take note that I have a new address which appears on this page. To save you time and the bother of writing a letter, just mark your envelope "CQ SSB" and make sure that the return envelope is at least 9 x 4 inches in size.

CONFUSED?

Are you intending to use the PA0FM balanced modulator in your new exciter? At least one amateur, Dick VK-2AOC, of Byron Bay, is using this circuit and reports that it worked very well first try. If that extra line from the left of the ground point in the circuit on page 19 of Sept. 1962 "A.R." has you wondering, don't worry about it—it was a slip of the pen. The 47K grid resistor goes to the moving arm of the potentiometer in the cathode circuit and not to ground.

20 METRES AGAIN

Remember some months ago when the 20 metre sideband sub sections were subjects of hot debate? Should all the DX move to the low end of the phone band? Should W/K stations leave a few kc. at the high end for rare DX and DX-peditions? The situation in this part of the world seems to have settled down to the old pattern that we knew before the extension of the U.S. phone allocation. Most s.s.b. activity seems to be taking place from 14,260 to 14,350 kc. with occasional contacts being made in the 14,100-14,140 kc. segment. If stations in North America were evident during the usual operating times, the situation might be quite different.

Recently at Portland, Oregon, during the combined A.R.R.L. National Convention and the Eighth Annual Pacific Northwest DX Convention, the subject of 20 metre s.s.b. occupancy was discussed ,and it was approved by a large majority that "all 14 Mc. W/K s.s.b. stations operate from 14. 2Mc. up." The reasons given are of great interest.

"The number of a.m. stations from 14.2 to 14.25 Mc. has been greatly decreasing in number, and there is a large void from 14.2 to 14.25 Mc. This decrease in a.m. with the rapidly growing number of s.s.b. stations makes this eventually inevitable and practical **at this time.** These recommendations should be initiated immediately and a rapid and decisive move of s.s.b. stations to the low end of 20 metres should be started as soon as possible. It was also recommended and this is of interest to you and me, that "DX phone stations operate below 14,200 kc. and listen from 14,200 kc. up" and that "an educational programme should be started immediately to advise all DXers and DX stations of this suggestion."

(Continued on Page 18)

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SIDEBAND TOPICS

(Continued from Page 17)

The foregoing was reported by Irv. and Dorothy Strauber in the s.s.b. department of "CQ" magazine. They go on to say that with the large number of Amateurs in the United States leaving a.m. and going to sideband, and with so many newcomers starting phone with s.s.b., it is becoming apparent that with the division of the 20 metre band at present, the lower end is becoming increasingly more deserted, while at the higher end, the opposite situation obtains.

Here in this country. I feel that we would do well to follow these suggestions. The presence of s.b. stations from 14.2 Mc. down is not going to make much impact on the a.m. stations' capabilities to work DX, principally because the a.m. DX is almost non-existent with present conditions, which you must keep in mind, are still deteriorating. Also the a.m. and s.s.b. compatability has been proven on the 40 metre band.

A concerted effort by those of us who use 20 metres for DX contacts would quickly establish the old methods used before the coming of sideband. For those of you who have no experience of this, the 20 metre band was segmented as follows:—

14.0-14.1 Mc. C.w.
14.1-14.2 Mc. DX (i.e. non-W) Phone.
14.2-14.3 Mc. W Phone.
14.3-14.4 Mc. C.w.-DX Phone.

The present suggestion is for a return to this plan with W/K phone extending from 14.2 to 14.35 kc. In the past, this plan worked extremely well and would now have an added advantage in bringing a.m. and s.s.b. together. When was the last time you contacted an a.m. station on 20 mx? Your thoughts on this matter would be appreciated.

HOW MANY?

Do you know that Comps VK5EF keeps a sideband register. This register is a record of those of us in this country who are using the modern method of phone transmission. As at the end of January, 1963, the number of s.s.b. stations by States makes interesting study. We cannot vouch for the accuracy of these figures (they are always increasing), but they are as correct as Comps can ascertain:

VK1	4	VK6	15
VK2	113	VK7	5
VK3	97	VK8	2
VK4	32	VK9	5
VK5	36		

N.S.W. is still holding a healthy lead. Are you sure that your call is in the Sideband Register? If not, send your card with brief details of your equipment on it to Mr. E. C. Daws (VK5EF), East Terrace, Gawler, S.A.

BOOK REVIEW

The A.R.R.L. has published the third edition of their popular "Single Sideband for the Radio Amateur". I am sure that this edition will be just as sought after and as useful as the last two have been. The manual is still a digest of articles that have appeared in "QST" and while retaining quite a few earlier items on basic theory, many new articles have been included.

The chapter headings are the same as the previous editions but the material is very much up-to-date. The 7360 tube is given full treatment, modifications to old faithfuls like the Sideband Package and W2EWL phasing generator follow the original articles. Several new linears appear and the v.h.f. gang are not overlooked.

If you regularly receive "QST," you will not find anything new, but it certainly is convenient to have all this excellent information between two covers.

If you are a newcomer to s.s.b. or thinking about joining the ranks of a large number of satisfied customers, you should not be without this new addition to the Amateur library, the latest and most modern sideband manual yet published.

My copy came direct from A.R.R.L., West Hartford, Conn., where the price is $2.00 (U.S.). It should be available in Australia by this time at about 30/- per copy.

TWO NEW AWARDS

The Kroonstad DX Club has among its members the foremost DXers in that area including ZS4MG, ZS4IO, ZS4U, ZS4LK and ZC4CO. In order to recognise outstanding achievements and all round operating ability in the DX fields in both phone and c.w., the Club has instituted two awards.

6 X 6 AWARD

To qualify for this award applicants must have proof of QSO with six different countries on each of the six continents. Of these six countries, three must have been worked on phone and three on c.w. (18 different countries on c.w. and 18 different countries on phone.)

Stickers are available for 12 x 12 and 18 x 18 under the same conditions as above, i.e. half to be worked on c.w. and half on phone.

The 6 x 6, 12 x 12, and 18 x 18 are recognised by the Certificate Hunters' Club as three separate awards.

6 IN 6 AWARD

This award is for working the six continents within a period of six hours and is available on a c.w. only or phone only basis. Each award is given for one band only—no mixed band working is allowed. Therefore the following different awards can be claimed: 28 Mc. phone, 21 Mc. phone, 14 Mc. phone, 7 Mc. phone; 28 Mc. c.w., 21 Mc. c.w., 14 Mc. c.w., 7 Mc. c.w.

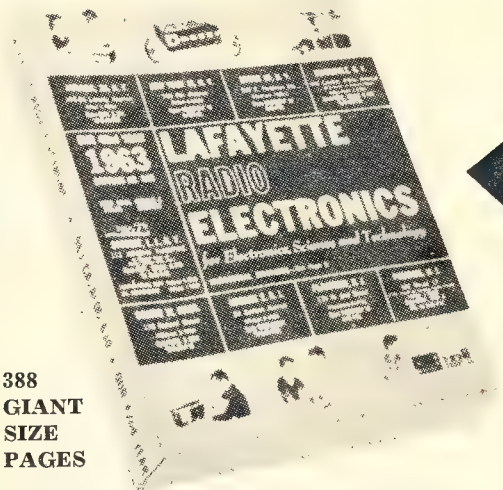
No contacts made during any contest will be allowed and the application must be endorsed to that effect by the applicant.

For both the 6 x 6 and 6 in 6 awards, it is not necessary to send any QSLs if the application is countersigned by two other Amateurs, or Radio Club official, that the QSLs have been seen by them. However, the Kroonstad DX Club reserves the right to request any QSLs.

Both these awards are also available to Short Wave Listeners under the same conditions.

The cost of each award is five I.R.C. by surface mail or 10 I.R.C. (1 dollar in case of U.S.A.) for air mail.

For both awards apply to the Secretary, Kroonstad DX Club, P.O. Box 378, Kroonstad, South Africa.



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VHF

50 – 144 – 288 – 576 – 1296 Mc.

Sub Editor: BILL ROPER, VK3ARZ, (Phone 23-9492)
Lot 59, Orchard Street, Mount Waverley, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Very few v.h.f. Amateurs, whose transmitters are crystal locked, have facilities available to conveniently allow them to check their frequency in relation to other signals in the band. All v.f.o. controlled transmitters have (or should have) this facility which is known as the "net" or "spot" position.

All that is required is that the oscillator be made operative, either by a third position of the T/R switch or by a separate control, so that a signal can be heard in the rx and the operator is able to "spot" his frequency against adjacent stations. This should be done every time you answer a CQ or give one.

If there is a station already operating on the frequency, the correct thing to do is to stay off the air or switch to another crystal, once again checking its position in the band. If another station is using the frequency you normally use, leave him be. He was there first. Do not try and blast your way through over the top of him. This is a shocking practice and happens far too frequently.

There are large expanses of vacant frequencies in all our v.h.f. bands so there should be no reason for heterodynes caused by adjacent channel interference.

Unfortunately the only notes that had arrived prior to writing this were those from Roy 9AU and Al 5ZCR. Would all scribes please note that their notes should be posted to me no later than the first day of the month preceding publication. 73, 3ARZ.

VICTORIA

50 Mc.—This band was reasonably good during Jan. On Jan. 14 it opened to VK2, 4 and 5, ZL, and a VK6 mobile. Jan. 19 open to northern VK2 and southern VK4. On Jan. 20 there were patchy conditions all day with the band in and out to northern VK2 and southern VK4. At approx. 1500 hrs. E.A.S.T., 4ZJS at Longreach was worked and at 2000 hrs. a VK6 at Kalgoorlie. Again on Jan. 22 at about 1300 hrs. E.A.S.T. it was open to northern VK2 and southern VK4, as it was on 26th and 27th also.

New stations on 50 Mc. include Graham 3ZAA at Essendon, David 3ZOP at Moorabbin, Gordon 3ANM at Rockbank, and Dennis 3ZLY at Flemington. Ken 4ZGX, who has been portable at Hampton, but should have his VK3 call by now, will be located at Beaumaris. Bill 3ATW hopes to be on 6 mx soon from Hampton. Vic 3ZNN at Pascoe Vale has appeared on the band and is using 20w. to an 815, a two element beam and a four tube converter. Bert 3ZGD has made a return to this band with mobile equipment which includes a v.f.o. controlled tx.

The Jan. 6 mx scramble was held on Sunday, 27th Jan., at 7.45 p.m. Fifteen stations participated and the winner was Ken 3ZNJ. The March scramble will take place on Sunday, 24th at 7.45 p.m.

144 Mc.—Several new calls were heard on 2 mx during Jan., but the only one we have any information about is Peter 3ZPC, at Ormond. He is using a R. & H. converter, a turnstile antenna, and is running 20w. to a 522 tx. Ian 3ZMH at Queenscliff, Eric 3ANQ at Warrnambool, Gordon 3AGV at Colac have been active on the band and Melbourne stations should keep an eye open for them as well as Ron 3ZER at Ballarat and Col 3FO at Maldon. Two other very active country stations are Maurie 3ZOL and Alan 3ZNB at Anderson. Ron 3OM should be back on the band shortly and Fred 3ZNT should soon have his mobile gear operating.

The Feb. 2 mx scramble was held on Sunday, 10th, at 7.45 p.m. Ron 3ZIW was control station and 21 stations participated—none of them country stations. Winner was Bill 3ARZ with 16 contacts and 3ZOH and 3ZNV were equal second with 14 contacts. The March contest will be held on Sunday 10th at 7.45 p.m. The Jan. 2 mx fox hunt was run on Wed. 30th with Tom 3AOG piloting the fox car. Winner was Bill 3ARZ. The March fox hunt will take place on Wed. 13th commencing at 8 p.m. from College Cres., at the rear of the Melbourne University.

The Jan. V.h.f. Group meeting, held at the W.I.A. rooms on Wed. 16th, saw 45 members in attendance. A large amount of business was discussed and then Bill 3ABP gave a very informative lecture on how antennae, particularly yagis, worked. Supper was then served and the meeting closed sometime after 11 p.m. The March meeting will be held on Wed. 20th at 8 p.m.

I wonder how many VK3 Amateurs realise that there is an attractive certificate available to those who can produce 100 QSL cards confirming QSOs with 100 different stations on frequencies above 100 Mc. Claimants should apply to the V.h.f. Group. 73, 3ARZ.

SOUTH AUSTRALIA

50 Mc.—As these notes are read the VK5 beacon station should be operational, its frequency is 50.5 Mc. (for further data see "A.R." for Jan.). The beacon has been undergoing extensive tests at the QTH of "Le Patron" 5LA, and as we write it is only a case of obtaining the correct crystal and installing the rig at Mt. Lofty.

The thanks of the Group are extended to Bob 5ZDX (keying mechanism), Rick 5ZFQ (antenna), Bob 5ZFG (r.f. deck), Alf 5LA (power supply and keying electronics), and Brian 5TN. The Group's thanks should also be extended to several large organisations who contributed parts (albeit unwittingly). Premium quality components are used throughout and the tx keying is entirely electronic (although programmed mechanically).

New chaps on 50 Mc. include Bert 5ZDU at Rose Park, running 60w. to a 6/40. DX for Jan. was very good during the first portion of the month, but fell off thereafter.

144 Mc.—Biggest news on this band is 2ZGC at Broken Hill (270 miles). This chap is on 144.25 Mc. and although no equipment details are on hand, he must be quite well set up as he has so far worked three Adelaide stations (5AW, 5RO and 5ZDR). Now daily skeds are held between Adelaide and Broken Hill, between 7 and 8 a.m. C.S.T. and these skeds are successful a high percentage of the time. Other chaps are welcome to listen and call during these sked times as it is understood that the contacts into Adelaide are the only ones 2ZGC has had. Of course the Broken Hill station will have his antenna on Adelaide for these skeds, and this will not favour VK2 or VK3, but the Mt. Gambier gang may find it well worth while keeping an eye out.

A brief ionospheric opening occurred on 144 Mc. during 12th Jan., 1963. 4ZAX and 4ZAZ heard VK5s and vice versa, but no QSOs resulted.

Snowy 5NW at Crystal Brook has put up a 10 element yagi on 2 mx (144.17 Mc.) and hopes for even better signals into Adelaide (180 miles). Also at Crystal Brook, and believed to be much better located than 5NW, is 5BG. This operator has not been heard yet, but his 2 mx gear is going and it will be interesting to compare his signals with 5NW's. 5BG's freq. is not known yet.

David 5AW has a 40 element array going on 2 mx (4 x 10 element Yagis) and a new 6CW4 converter. David is now well and truly organised after a period of inactivity following his move from Penola. Another Elizabeth Amateur, 5DY, has been heard on 144 Mc. Brian 5ZBR now has 2 x 10 element Yagis on 144.

General News.—Les 5ZLS, accompanied by Colin and Trevor, are Mt. Gambier chaps who have been staying in Adelaide for a couple of weeks in Jan. They have gear on 6, 2 and 1 mx and are having numerous contacts, both portable and mobile. Activity in Mt. Gambier is at a high level according to these chaps and contacts on 144 Mc. as far as Melbourne have been reported.

Bob 5ZDX is getting mobile gear going on 6 mx. What happened to the s.s.b., Bob? Hughie 5BC has been very active recently and has been working Adelaide stations on 2 mx, including chaps in the difficult Eastern suburbs (5BQ and 5ZCR). Brian 5ZBI, of Maitland, is moving soon to Clare. Curl 5ZBL is now 5CL and 5ZDN is now 5JQ.

Joe 5ZCP at Whyalla has built himself a 50 ft. tower and hopes to work into Adelaide on 6 and 2 mx. Doug 5KK is now well and truly resident in Darwin; he has been worked by one well-beloved local on 21 Mc. and informs the gang that he is operational on all bands 80 to 6 mx. (Call 8KK now, of course.) Doug's antennae were limited at the time of writing, but he hopes for improvement here. Mick 5ZDR looks like taking out the Ross Hull for VK5. Your conductor has built a transistorised v.f.o. for 50 Mc. (2 x OC171). Now let the mains voltage do what it likes! 73, 5ZCR.

PAPUA

50 Mc.—With the exception of 1st Jan., on which VKs 2, 3, 4, 5, and 7 were worked, no signals were received in Port Moresby during the month. This was partly due to the fact that I was absent from the home QTH for 10 days early in the month. 9ZBV/P (Rabaul) who has since returned to Moresby, reported openings to VK on two occasions, although no stations were worked, and TE scatter 49 Mc. signals on one afternoon for several hours at S9 plus. Paul advises that he has interested two stations at Rabaul in 6 mx operation and that their signals may be heard in the near future. No further information on this at present. Also it is hoped that another VK9 Papua station, approx. 100 miles from Moresby, may be operative within six months when equipment becomes available. No further news from Jim 9AS at Wewak, T.N.G., who should be back from his leave before these notes appear in print.

144 Mc.—No activity during the month. 9AU listened during Dec. when the VK4/VK5 openings occurred and also carried out a test with 4ZAX without result.

T.V.—Channel 2 viewed on 16 days, signals being from ABQ2 and ABS2, also ABT2 and ABV2 on 1st Jan. 73, 9AU.

☆

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

ROSS HULL CONTEST

Editor "A.R.," Dear Sir,

From an S.w.l's. or my own observations on the Ross Hull Contest of 1962/63 I find that there is not enough support considering the number of Z calls registered. One finds a few very keen contestants while the majority say, "I'm not in it, but will give you a number," then amble on re their rig and general doings instead of letting the other chap get more contacts and points. A good lesson in contest procedure can be learnt from VK4 contestants.

Recently I heard a VK2 full call operator suggesting to a Z call against v.f.o'ing on to the ZL frequency because the strong VK signal may cover the weaker ZL carriers, and stop a contact. On a number of occasions I have heard the same full call chap in contact with ZL on 51 Mc. going into lengthy detail of his trips to that country while many of the limited call chaps lose a chance of the only DX to be had by them. If he wants to rag chew, why not go to the frequencies of which the Z calls cannot use, or get his contact and give the other lads a fair go.

With reference to the scoring system in the Ross Hull Contest, I consider that the old system or one similar to the R.D. would be preferable to the present method. The single point is an advantage to the chaps in and around the metropolitan areas and quite a handy number of points can be had, while the operators in the outlying districts have to rely on band openings. This I think keeps quite a few out of the contest. The present system with a really good v.h.f. season, plus the mileage problem, and naturally big scores, must give the Contest Committee a lot of work, which being voluntary, could be made easier by a more simpler system.

—Chas. Aberneathy, WIA-L2211.

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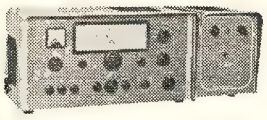

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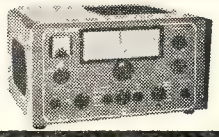

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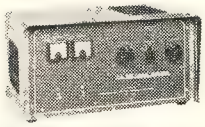

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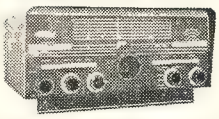

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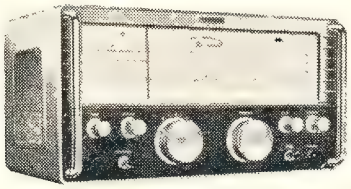

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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)
35 Whynot Street, West End, Brisbane, Qld.
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While 7 and 14 Mc. remain fair with some good DX workable, 21 Mc. has been a disappointment. It would seem that for the next few years, sigs on this band will be few and far between. Prediction charts show that this band should be OK for DX during daytime, but these charts are drawn up on the basis of higher power and a lower antenna radiation angle than most Hams use. On 3.5 Mc. many Ws are workable at night around 1000z, but QRN is a great handicap on this band.

NOTES AND NEWS

Danny, using prefix FW8DW, is doing a 15-day stint from Wallis Is. Commenced 23/1/63. By the time this is read he will probably be in Suva in conference with the Yasme Foundation, re the future of his world travels.

Gus W4BPD was due to show from FR7 Reunion Island, beginning Feb. This should be an easy one, both on 7 and 14 Mc.

Steve VK0VK has cranked up from Antarctica. His 40 and 20 mx sigs are very good here. QSL via Steve's home QTH at Tweed Heads.

VK0NL is said to be active during all Feb. from Heard Is. Mode c.w. only on 7 and 14 Mc. This, however, has not been confirmed as yet.

TT8AL, TN8AF, 5R8CJ, FB8ZZ, FB8XX and many other prefixes are easily workable each night on 14 Mc. round 1400z. Africa has been providing some really rare ones these past weeks.

The AP boys have made their appearance on 7 Mc. Regularly heard are AP5CP, AP5AH, AP5JA, AP5SS, etc. They are in East Pakistan and a new country. All QSLs go via AP5CH.

40 mx still provides some rare prefixes each night; 5R8CJ, KP4AZ, VQ1GDW, VQ2W, 5A3TC and several VS9s are but a few on daily.

George, ex-ZC5SF, says he will soon be on as VR5CF. (From VK2ZR.)

Still receiving queries on AC4AX, purportedly in Tibet. He is to be found around 14025 kc. after midnight, our time, with T8 note. He requests QSLs be sent to Box 534, New Delhi. He may be authentic, but the present Sino-Indian dispute would seem to make this unlikely.

FG7XL works both 21 and 14 Mc. He is one of several FG7s active at the moment.

9L1RO and 9L1HB are from Sierra Leone. I have heard the former, on 7015 kc. at 1930z.

The DX fraternity in Australia will be sorry to learn of the death, on 13th January, 1963, of William P. (Bill) Petersen, W0JRY. Bill, who was most active on 10 metres, visited Australia some five or six years ago. He was 63 years of age.

ACTIVITIES

Ken VK3TL wkd. these. 14 Mc. c.w.: CR-8AC (Timor), DL0UU, DM3, EA7, ET3PP (1555z), FR7ZD, HA3-6, HB1, HL9, LZ2, SL-6BH, SM7, SP2-8-9, SV0WZ (Crete), TT8AL, UA3-4, UP2, UL7, VK9LA (Cocos), VQ2WR (1355z), VU2, YO3, YS10, YU1-2, YV4, ZE1-2, YV4, ZE1-2, ZS1, 4X4, 5B4TC (1425), 5B4FB (1320), 6O1MT (1430). 14 Mc. phone: CE4FH, DJ3-8, DL1-3, EP2AC, EP2BQ, ET3JK, ET3LM, G6, HB1, HC1, MP4B, OA4, PJ2AF, SV1AR, VR3R, VS9MB, XE2, 4U1ITU (U.N. Geneva), 5A5TW, 5A5PO.

Frank VK2QL logged the following. 3.5 Mc. c.w.: JA7LK, JA8LN, W6DZF/KM6, KH6AFS, W1ME, W2KQT, W4KVX, W4ZYS, W4ZYQ, W5LGG, W5EJT, W6QYH, W6WB, W1KIP, W6CEM, W6OXJ, W7JLU, W7HWQ, VE7BAX, W8AK, W0FDL, VE1ZZ, VE5AJ, VE6NX. 7 Mc. c.w.: FW8DW. 14 Mc. c.w.: VK9LA, HS-3PD. 21 Mc. c.w.: FU8AA, HL9KH. QSLs rcd.: CR8AC, ZD6JJ, ZC5FF, VS1FJ, VS1LJ, VS4RS, FU8AA.

Ted VK5JE has been active on 80 mx and wkd. a large number of Ws, amongst other stations, all between 8 and 10 p.m. local time. 80 mx c.w.: JA7LK, ZK1AR, W4VCA/KH6, JA6AK, W1BU, HL9KH, VR2DK, W2KQT, W4LVV, W6LHN, K6BPR, W6RW, W6VF, K6SXA, W6ISQ, W7UY, W8JIN, W9EWC, W0DZH.

Leigh VK4RH, who runs an HT32 barefoot, QRP s.s.b., sends in a nice lot. 7 Mc. s.s.b.: G3DO, JA2BAY, K0UKN, K5JOP, W9JLH, G8PO, GI3IVJ, W6SNR, K9JJR, W6KJS, W4-AXZ, W5LKN, KH6EJY, KH6EVT. 14 Mc. s.s.b.: SM5AXQ, GI3NUM, I1ASO, SM5RM, G4JW, CN8FK, KR6BA, KC4USX, GD3GMH, KG6AOD, GI4RY, ET3LM, G8PO, DL3EA, G3MEA, G3BM, I1DCE, HB9MQ, OH3PC, F7AS, UA3SE, SM6BH, ON4TC, EP2AD, CE3RC, VR3O, G6DW, G3FM, OE2WO, F3II, W4GSG, HL9HG, UI8AG, VS9MB, PA0EF, DL9OH, G3OGE, PA-0KSB, G8KW, G3BTA. 14 Mc. s.s.b.: OZ5KG, UD6KAR, ZM6AW, SM7ACB, YA1AW, HB-9TL, OE1ME, EP2BQ (ex ZL4JA). 21 Mc. s.s.b.: XE1MC, W5FUR, DL4DL, DU1EH.

Pete WIA-L6021 reports conditions poor, but 80 mx bright around 1000z. DX heard on 15 mx, a.m.: G3NEO, JA1ADD, VS1FX, VS1GC, VS4RS, ZE2JA, ZE7JD, ZL2ALO, ZS1CD, ZS-5NJ, ZS5TA, ZS6ATF, ZS6AYV, ZS6AYW, ZS6OS, 4S7GV. 15 mx c.w.: JA1JBD, KR6NAA, OK1GT, SP8CK, ZS5BR, ZS5KI. 15 mx s.s.b.: VK0DS, VS9MB, ZS1JU, ZS5KI. 20 mx a.m.: I1BAT, VQ8BL, VS1GZ, ZL3BUY. 20 mx s.s.b.: EP2AC, ET3LM, G2HFD, KC4USG, KR-6LJ, MP4BBW, VS9MB, K6RIK/MM, WA8DSB/MM. 40 mx a.m.: DU1AN, DU1BSP, DU1MR, DU6RG, DU9FB, 9M2DQ. 40 mx c.w.: CN2FK, DJ1FN, DJ4AX, DU1BSP, HA3KGC, HB9AAI, HB9EU, HM4AQ, JA1, 2, 3, 5, 6, KG6NAA, LZ1KDA, OK2QR, OK3AL, SL8AY, SP5AI, UA3KAB, UA9PH, UA0FF, etc.

Eric BERS195 has concentrated on 7 Mc. of late. He recorded these c.w. stns.: BY1PK, CT3AB, FB8ZZ, CR7IZ, CN8MZ, FW8DW, VQ-1DGW, VQ2W, HM5BF, EA6AM, ST2AR, VQ-4IV, UF6FB, UH8KAA, I1ZM, UI8ZA, UL7KCB, UM8KAA, UO5PK, UP2KBC, UQ2KAA, YV-2BJ, ZB1CR, ZE5JF, ZS6ALK, 5X5IU, 4X4KK, etc. QSLs recd.: EP2BK, UG6KAA, VS4RS, ZB1BV, 5B4TC.

John VK2ZR, previous editor of this page, is now active again and worked 52 countries during January. Welcome back, John OM. Here is the list, 20 mx c.w.: AP5AH, BV1USB, CE4AD, CR8AC, DJ8DFA, FK8AS, G6UF, GM-3KTZ, GW5TW, HB9NE, HM1AB, HL9TF, HK3RQ, I1ZIX, JA0KI, JT1KAA, KG6AIG, KH6COB, KM6CE, KR6MO, KR6AG, KS6AX, KV4CI, KX6AW, LA5VH, LZ2KBA, OA4CG, OE1IE, OH1NX, OK1GL, OZ4H, PA0QU, PY-5ASN, SP9RF, UB5UW, UC2KAA, UH8KAA, UI7GP, UP2CT, UR2KAN, UW3NE, UW0IF, VE7BBB, VK8JI, VR2EK (Bill W6AL), VR5AA, VS1LD, W4NIX, XE1VI, YO3RW, YV5FV, ZL-2GH, ZS2EN, 9M2FT.

Ray VK2RA reports that 80 mx is picking up when QRN permits. 3.5 c.w.: KH6ARL, VE7AGF, VE1ZZ, W6OXJ, KV4CI, JA1GKP, JA8LN. 7 Mc. c.w.: DL1DV, G3PIT, W2VJN (long route). 14 Mc. c.w.: ZS6AJQ, UA2KAW, KC6BO (Palan), CR9AI, UB5AR, UD6, UL7, UL8, UJ8, UM8, CX1OP, HS3PD, CP3CN, 5B4TC, W5KC (long route), DL5SK (l.r.). 14 Mc. s.s.b.: EA3JE, K6CQV/KS6, YV5BNW, UA6FD, MP4BBW, ET3LM. 21 Mc. c.w.: MP-4TAC, PZ1CJ, UF6FB, YO3RD, UP2NM. QSL cards from KC4USB, KC6BO, UR2AR, FA2VW, UP2NV, ZC5FF, ZC4IP.

Yours truly, VK4SS, wkd. 7 Mc.: VS1BU, KP4AZ (long path, 1944z), FW8DW, VK0VK, VQ1DGW, VQ2W, F3NB, VS9ARK, VS9AAA, LZ1KGZ, YU1BCD, DL6CV, VU2MB, UP2CA, HM4AQ, AP5CP, AP5JA. On 14 Mc. AP5CP, AP5JA, AP5SS, AP5AH, TT8AL, TN8AF, 5B4SS, VK9LA (Cocos Is.), HK3LX, VQ8BT, VK0VK, FW8DW.

Bev. VK4BL, despite poor conditions, managed to skim off some good ones. All 14 Mc. c.w.: AP5AH, AP5JA, CE1BD, CR7IZ, CR8AC, DJ1QX, DL7GF, DM3ML, EP2BQ, F2MA, FB8XX, KR6KS, G3AAE, G6WF, HB9LN, JT-1KAA, LU1NE, LU6FA, OA4CG, OK1XJ, OK-3WO, SP5KCR, SP5WC, ST2AR, VQ2JC, VQ4IC, VS4RS, YO7DL, VS6EC, VS9MB, VK9LA, VK-0VK, YO9HC, ZE8JW, ZD6OL, ZS5GC, 5B4TC, 9M2FT, 6O1ND, 4S7EC, 4X4WF, 4X4OW, and many others worked and heard.

Rick VK3ARK is still on 14 Mc. after 35 years of Hamming, he says conditions surely aren't what they used to be. He wkd. the following rare ones during December, all c.w. and times GMT: ET3JK 1925, HH2CE 2010, VP5GT 0450, VQ9HB, VP6RG 1830, 5A1TW 1625, 5U7AC 2030, AP2AR 1235, KB6CA 0930, MP4BDX 1135, PJ4AD 1140, SV0WZ Crete 1530, ZB1BX 1545, 5B4RF, 3V8CA, 6W8DD, 6O1MD all round 2000, and others.

SUMMARY

Letters and laments from the following:

Frank VK3AGF has not pressed the key since coming home from 9M2, but will be active soon. He says that KP4BBN is wanting QSLs from VKs 5LC, 3ATN, 3AEE, 2ALR, 2IC—so please boys, his QTH is Luis M. Cabrera, 18 Betances St., Hato Rey, Puerto Rico.

Sven SL3ZO writes that he wants QSOs with VK5 and a QSL from VK5QR. He hears VK2AVA at S7 on 40 and 80 s.s.b.; also says that VKs are slack with QSLs.

Ted VK5JE put pen to paper about Hams these days being Award-Certificate happy. He asks that "A.R." run the details of an award or two in each issue. (Award hunting is Amateur Radio's newest fashion, Ted OM, and as yet, its influence, for good or bad on the game, cannot be estimated. However, obtaining the top class awards are a worthy achievement for any Ham.—Al.)

Overseas news is a little light on, this month. Conditions were very bad on sked times and there is no mail to hand from W4CKB Florida DXer.

Once again, thanks to all those mentioned above and several others for their help with this DX page. Keep writing, please. 73, Al VK4SS.

P.S.—I can always get a laugh out of the compilation of this news. My good YF, when typing VK4RH's rig description, i.e. "Leigh runs an HT32 barefoot" asked me, "Does he pedal it?" (Shades of the Inland or Tennessee Hillibilly, hi.) (No offence Leigh OM.)

☆

MARCH OF TIME

CAMEO ON AMATEUR RADIO IN U.S.A.

Here's a word picture of Ham population versus spectrum space over the past thirty-five years.

Before 1927, U.S.A. Hams had 1,000 kc. on 7 Mc. and 2,000 kc. on 14 Mc.

After 1927, it was reduced to 300 kc. on 40 mx and 400 kc. on 20 mx. At this time there were 17,000 Hams. By 1933 the number of Hams was 42,000.

The 15 mx band was given in 1951. In 1962 there were 250,000 W Hams. Russia too has fast increasing numbers, all to be crowded into narrower spectrums.

Quo Vadis? — VK4SS.

W.A.Z.

(as at January 1963)

C.W.

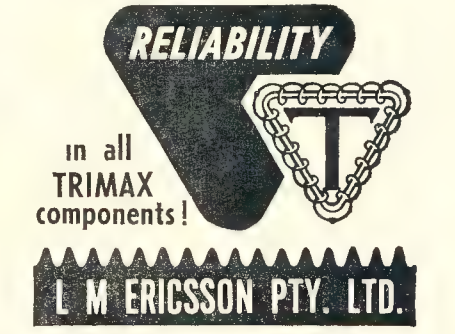
VK2AM	VK3CX	VK4AL	VK5MF
VK2ACX	VK3EK	VK4DO	VK5NQ
VK2APK	VK3HL	VK4EL	VK5QR
VK2DI	VK3JE	VK4FJ	VK5RX
VK2HZ	VK3NC	VK4HR	VK6DX
VK2NS	VK3RJ	VK4SD	VK6KW
VK2PV	VK3RP	VK4TY	VK6RU
VK2QL	VK3YD	VK5JS	VK6SA
VK3BZ	VK3YL	VK5KO	VK7CH
VK3CN			VK7LZ

PHONE

VK4FJ VK4RQ

ALL S.S.B.

VK3AHO



SWL

OH0, KL7, ZD8, ON4, LZ, FF8, VP8, XW8, 5H3, W0

Sub Editor: J. M. (Mac) HILLIARD, WIA-L3074
57 Gardenia Street, Blackburn, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Hi there fellow dial-twisters! This month I would like to say a word or two to the newcomer to the s.w.l. ranks.

When you first begin to send out reports to a station, do not be too hasty to get that report off without first considering whether your report contains enough detail. Make sure your report contains the following: Time (GMT should be used when reporting to an overseas station), date, signal report. The report should contain information of the QSO that you heard. Also if possible, the signal report that the transmitting station gives to the station he is working, and any other details of the transmission that you consider would be of interest.

Be courteous and friendly in your report. Give details of your equipment and of your location. A self addressed envelope is always appreciated. If you are sending to an overseas station, it is suggested that where possible to include an international reply coupon.

There are times when a station may be having trouble with his tx, if so report what you hear. If a station is only S3 to 4, well give him that report, and not an S8 to 9. Naturally he will appreciate an accurate report. We take a very serious view of false reports being sent to stations.

What has become of many of you fellows that used to send us news of your activities? No doubt some of you now have call signs, but there are many that have not. But even if you are on the air, don't let this prevent you from writing to us now and again.

It has just occurred to me that if there are enough of you who listen on the v.h.f. bands, how would you like us to start a v.h.f. ladder as well as our usual DX ladder? Anyway, fellows, let's have your ideas on the subject.

VICTORIA

Maurie, our President, Ron Young and Ian Thomas have been flat out in the Ross Hull Contest. Ron recently put up a cubical quad for 50 Mc. and is very pleased with it, while Maurie threw up a folded dipole 38 ft. high and has really been pulling in the DX on it.

The DX ladder has really been given a shake by that old DX hound, Maurie. He has been getting something like four new countries verified each month. An interesting one heard the other day at your scribe's QTH was ZS6VX who was mobile in ZS1 land. But generally conditions have been very poor on the DX bands. Several interesting Russian stations are being heard on the short path of an evening. Those of you who do not listen to s.s.b., and only to a.m., are certainly missing out on much DX, plus the fact that the QRM position is far less than with a.m.

At our monthly meeting it was decided to start an organised monitoring of the bands. The first run will cover 7 Mc. The idea being to listen on the band every Sunday for a month between 7 and 7.30 p.m. Then we will compare notes at the next meeting. It certainly is a good idea of yours Tom, and we hope to have further activities along these lines providing we have good support from our members. So go to it chaps and see what you can hear. We were pleased to welcome two new members at the meeting. They were Michael and Robert. Pleased to have you with us boys and hope to see you at our future meetings.

Craig Cook has taken over the position as publicity officer, so would you kindly send any news you have for the weekly broadcast directly to him. Any news at all will be very much appreciated I can assure you, so go to it and let Craig know what you have been hearing.

It has been decided to hold our Convention now in April. Due to a number of reasons, the main one being that as the State Convention is being held in March, we felt that it would be better to have ours a bit later.

I feel that if I have not received any information on your scores after a period of three months, I think it is only fair your name be withdrawn from the ladder until I hear from you again.

INTERSTATE ROUNDUP

Chas Aberneathy has recorded a good score in the Ross Hull Contest, however he tells me he has been encouraging a friend of his who is a newcomer to the s.w.l. ranks, and he (the newcomer) amassed a much higher score in the Contest. Nice going there young fellow and with a score like that you fully deserve to win the Ross Hull. It is very good of you Chas to give your time to encourage the newcomers to the s.w.l. ranks. Chas has the distinction of possibly being the first s.w.l. in VK to have confirmed all ZL districts on 50 Mc. Nice work, Chas. and congratulations. Recently Chas received his certificate for the 1961 R.D. Contest.

Eric L3042 has recently returned from a holiday in VK6 and reports that he and his XYL had a very good time. Recently Eric received the B.E.R.U. award for being the outstanding s.w.l. for 1962. Congratulations on such a wonderful effort. Eric received 562 QSLs last year from 108 countries. Many thanks for your very interesting letter, Eric.

Noel Harrison, L3101, despite his recent illness, comes up with a nice list of DX heard. Noel assisted 3WC to erect his Thunderbird TH4 recently. At present Noel is flat out learning c.w. So watch Eric for some competition from Noel in the future. Noel's rx is working very well on s.s.b. and some good DX has been heard. Noel reports that EA4GZ was his only QSL for the month. While your scribe only received ZL1ABZ from the Kermadec Islands. Noel is one of the few people that has managed to obtain a QSL from W1BCR —this card is some 35 years old and is rather an antique.

Our good friend Peter Drew, L6021, has been busy battling with the DX on most of the bands over the past month. Peter listens at night on both 7 and 3.5 Mc., however he is finding the QRM rather a problem and as a result he has been QSYing to 3.5 and listening to the Ws. How do you manage to put up with the static at this time of the year, Peter? He has been kept busy with letters from a number of American s.w.l's. and Hams. Very pleased to hear from you Peter and keep up the good work. Now come on you other Sandgropers, how about giving Peter some support?

So until next month, 73, Mac Hilliard.

DX LADDER

	Countries Conf.	Countries Hrd.	Zns. Conf.	S.s.b. Conf.	S.s.b. Hrd.	W Stat.
E. Trebilcock	277	283	40	—	—	50
D. Grantley	112	252	38	16	97	34
A. Wescott	84	159	31	9	107	11
M. Hilliard	71	215	33	13	129	11
M. Cox	63	220	29	30	136	16
C. Aberneathy	44	85	27	—	—	14
P. Drew	43	193	21	15	111	9
N. Harrison	40	102	27	2	14	29
I. Thomas	29	134	18	8	88	11
P. Fields	26	133	—	—	—	—
D. Jenkins	10	144	7	—	—	—
H. Burger	6	185	5	1	19	—

YOUTH RADIO CLUBS

Y.R.C. fortunes in VK2 go on to greater and greater strength, especially now that the High Schools have resumed activity. Note the facts—more than 40 clubs, 60 elementary certificates, 6 junior certificates, 2 A.O.C.P. (and four more probables), but this is in VK2! I am making enquiries in other Divisions to check my information—you may have to pardon my vitriol.

Hints to Club Leaders: Fathers don't take kindly to laying out £10 or so for a boy to start a hobby—boys commonly give away other hobbies in a few weeks. Try to get all the old but serviceable parts you can store. Radio service shops will help by giving you old sets normally thrown on a rubbish-heap, provided you guarantee not to do them out of any business. You can assume **any** place handling electronic equipment has something to throw away. Finally, issue it free to genuine experimenters but write it in a book and call it back if it is not properly used.

News jottings: The first VK6 registration of a Y.R.C. is the First Kalamunda Boy Scout Group—probably a transmitting type club with assistance from local Amateurs. Let us know about it—and stir up some others.

Auburn (N.S.W.) Senior Scout Group hopes to start a Y.R.C. to supplement Scout training, with assistance from Jim VK2AMQ.

We're proud of the scholastic success of our members — Commonwealth Scholarships to George Barnes, of Caringbah, and Vince O'Donnell, of Wahroonga (N.S.W.), son of Tom VK2OD. There must be more, so let us know about them.

VK5EQ says Port Pirie Amateurs are forming a radio club and propose starting a Y.R.C. in the high school. Is there any help at Divisional level?

Barrie VK4LN is starting a Y.R.C. in a Gympie (Qld.) Boy Scout group.

Frank VK2IZ, who established the Y.R.C. at Bass Hill (N.S.W.) High School, is now in Armidale and proposes to repeat the pleasant experience in a Boy Scout Group.

Don Reed (ex VK2DR), now Government Radio Officer on Christmas Island, Indian Ocean, proposes to start a Y.R.C. for Chinese and Malayan lads and correspondence with Y.R.C. members in VK would be a great help. Don's new call sign is VK9DR.

73, de Ken VK1KM.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Jack Kear, ET3JK (home call W3MCB) gives the following details of the set-up at Addis Ababa. He will be there for 18 months and is using a quad 52 ft. high. The QTH is 8,000 ft. above sea level. His QTH for direct QSL is P.O. Box 654, and if a direct reply is desired an I.R.C. must be enclosed. They QSL 100%, but via Bureau unless an I.R.C. is supplied. An alternate route is via K3HQJ.

Recent changes in the A.R.R.L. Bureau set-up are: W/K9, Ray Birren, W9MSG, P.O. Box 510, Elinhurst, Ill.; VE3, R. H. Buckley, VE-3UW, 20 Almont Rd., Downsview, Ontario.

Geo Barrett, 5B4IP, advises that the Cyprus QSL Bureau is located at P.O. Box 216, Famagusta, Cyprus.

The Tiger A.R.C. advises of the following new Awards: W.A.T. for two-way communication with four of its members after 13th Aug., 1962. Certified list with 12 I.R.C. is required. Present members are AP5CP, JA, AH, SS, WA, AP. Confirmed contacts with nine Pakistani stations (since 13th Aug., 1962) located in West Pakistan and four members of T.A.R.C. in East Pakistan. Cert. list and 12 I.R.C. for this one. All mail to Mohd, AP5CP, Dacca Signals, Dacca 6, East Pakistan.

The following is the dope on the Yasme foundation which is a non-profit corporation. The Yasme foundation is in support of the Yasme DX-pedition, now under way. A five dollar contribution, sent to KV4AA or W8EWS will bring you the Yasme Newsletter each month for one year, keeping you abreast of all Yasme moves and plans, plus other DX news. Members contacting the expedition have their QSLs answered by regular expedition QSLs, by airmal, while non-contributors receive their own QSL back, rubber stamped to confirm contact.

Cards handled at the Federal Bureau during January totalled 6.536, which is the highest monthly total since May 1950!

Bill Erich, W6AL, is currently signing VR2EK at Deuba, Fiji, where he has a beach home. He is returning to U.S.A. in March, but coming back to VR2 in October.

G5DQ advises he is QRV on 3.5 Mc. band from 1900 to 2000z daily for DX contacts.

The Philippine Amateur Radio Association (formerly Philippine Association for Radio Advancement) advise the new business and QSL Bureau address is 1546 Requesens, Sta. Cruz, Manila, Philippines. The new QSL Manager is Eliodoro ("Dick") Claro, DU1CE.

The "Pioneer Gem," currently in Australian waters, offers a quick way towards M/M certificate entitlement. On board are three active Hams—George WN2AAV, Ed. K2OZU and Calvin K3BKU. They may be found on c.w. around 21,100 kc. plus, with tidy signals.

The final itinerary of Al Scarlett, W2CC, for his forthcoming visit to VK during April-May is as follows: Sydney Apr. 7-9; Albury, 10; Callawadda (VK3HL), Apr. 11/16; Adelaide (VK5BO), Apr. 17/22; Melbourne (VK3RJ, VK-3XB), Apr. 23/May 1. A short stop-over in KH6 is envisaged.

Ray Jones, VK3RJ, Manager.

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NEW SOUTH WALES

The Australia Day week-end was a very busy time for the N.S.W. Division, being the Annual Field Day and Convention. We started the ball rolling with the general meeting on Friday night where an attendance of approx. 85 heard Ron 2ALR lecture on "Modern Trends in Commercial Equipment." Ron had some very nice commercial sideband rx's on display but his lecture, illustrated by slides, was most interesting because he gave the reasons, technical and otherwise, why the commercial firms incorporate ideas and circuits in their design and discussed the advantages and disadvantages of mechanical filters and crystal filters for sideband operation. The sideband boys learned a lot while the "ancient modulation" boys realised that they had a lot to learn.

On Saturday night the Annual Dinner was held at Wireless Institute Centre where approx. 60 Hams and XYLs were welcomed by the President (Max 2MP) and Council. The evening started off with cocktails and savories, while everyone met everyone else and had a good ragchew, then at 8 p.m. Max took the chair and declared the dinner "on".

Speeches, not being popular at any dinner, were kept short, but a special welcome was extended to Len Still, W0BMX, and his wife, who, owing to the mishap with the Canberra, found himself stranded in Sydney just in time to attend the W.I.A. function. Len, in reply, spoke well of the excellent welcome that has been extended to him by Hams during his world tour, especially ZLs, and his only regret was that he could only spend three days here.

The Newcastle boys were represented by Bill 2XT and Ern 2FP, and the Gosford section by Alex 2AAK, while Tim 2ZTM led a group from the V.h.f. and T.v. section.

Noticed among the locals was the Ham family, Ted 2FE, XYL Heather 2HD, and daughter Margarita whose one ambition is to get a call of her own. I have heard Ted working a lot of 7 Mc. mobile, looks like he can't get a go at the home rig.

The annual field day was held at the Dural transmitting station with an attendance of 200 adults and many more children. The weather was excellent, if a bit hot, which was a strain on Ken 2XS who was chief dispenser of liquids. The first event of the day was the 7 Mc. scramble and honours went to Harold 2AAH, with Bill 2XT second and Alec 2FM third. The v.h.f. scramble was taken away by Dick 2ZCF with 2ZPV second and Eddie 1VP, from Canberra, third. The 7 Mc. fox hunt went to Harold 2AAH and Dave 2AWZ second. Dave also won the 144 Mc. fox hunt, while 2ZVW was second and 2ZPJ came third.

The blind fold tx hunt proved very popular with the XYLs and harmonics, and the results were: Ladies, Mrs. 2ACK; Gents, 2ALV; Girls, Ricky 2AQX; Boys, John Grouse. The mobile efficiency test was conducted to encourage mobile operators to improve the efficiency of operating and points are allotted for efficient radiation, ease of operation on the move, neatness and road safety. Most points are allotted to road safety, i.e. the operator who can carry out a QSO on the move, keeping both hands on the wheel and his eyes on the road. The winners of this event were Harold 2AAH, 7 Mc.; and Keith 2ZVL, 144 Mc. Second place for 7 Mc. went to Col 2ACK, while Eddie 1VP took second prize for 144 Mc.

The V.h.f. and T.v. Group put on a good display of home-made v.h.f. equipment and another section was devoted to the latest commercial Ham equipment.

The Council wishes to thank all those who supported the Convention, especially the following trade houses, Ducon Condenser Ltd., Mullard Aust. Ltd., Lawrence & Hanson Ltd., Amalgamated Wireless Valve Co., E.M.I. Ltd., W.F.S. Electronic Supplies, and Town Talk Ties Ltd. 73, 2VL.

HUNTER BRANCH

Once again this month the v.h.f. boys are in the news with some remarkable breakthroughs on 50 Mc. Those participating in the increased activity caused by sporadic "E" and tropospheric tunnelling were Stuart 2AYF, Des 2ZDN, Bill 2XT, Ian 2ZIF and Mac 2ZMO. Stuart and Ian were successful in working all States and ZL on 50 Mc. Mac had so many QSOs with VK4 stations that he personally went to that part of the world to hand out the QSL cards. Those contemplating activity on the now very popular 50 Mc. band are John 2ZJG, Kev 2ZKW and Fred 2ZAP.

Conditions on 144 Mc. have also been good and Muriel 2AIA has been heard at good strength in Newcastle. Those old gentlemen of 40 mx, Bill and Bob, should take heart at this and get cracking on 2 mx as well. Ron 2ASJ would like to be an old gentleman on 40 as well but his box of tricks has developed some malady and he is active only on 144 as I write. Harold 2AHA and Jim 2ZC are still very active on 144 and the indications are that they are getting consistent signal reports from all over the Branch area. Rodney 2CN has been busy hiding his light under a bushel and though very busy on 86.25, he still manages to get contacts on 2 and 40 and as well to pass the T.S.O.C.P., which is really a commendable effort. If you would like to know what T.S.O.C.P. means, then see Rodney, but I can assure you there's no morse test involved.

Out Westy way, the workmen hired by Bob 2AQR are just putting the finishing touches to the second mast and any time now Bob will be able to sling up a decent aerial a few wavelengths high. I am told though, that the cage round the ladder is only made for a 50-inch waist, so perhaps he'll have to get me to take up the antenna.

Bill 2XT and Ernie 2FP, with Ernie's XYL, are at present on a jaunt all about the place with the mobile gear. First port of call is to be the radio telescope at Parkes and then via VK5 and VK3 to VK1 and then home. Out in the Charlestown mulga it is interesting to note that since the acquisition of the AMR-300 nothing has been heard of Norm 2ZNF. I fear that he suffers from the same trouble as me; so much on the bench that there's no room to work. Ron 2AAI, about whom we hear occasionally, is shortly to be active on 14 Mc. s.s.b., where he will be a competitor for Jim 2AHT, the loud voice from the south land. Just now Jim is keeping a bed warm in the hospital, but it is expected that by the time these notes appear he will be back on the air.

The latest activity out in the smog zone of Mayfield is an AR7 mod. by Varley 2SF. This is, of course, after he has groped his way out to the shack through the mobile talcum powder so generously supplied by the steel and smoke works. Bill Sinclair, who still waits for the Z call, has stolen a leaf from J beams book and erected a 6 over 6 skeleton slot for 2. Gordon 2ZSG has completed the seven-year project which was a four channel audio mixer —that's nearly half a channel a year. Dave 2BZ now works for himself, so we'll probably never hear him outside holidays and up in the coaly city Peter 2AIY has just completed his holiday, with 80w. on 144. The biggest Indian, Chris 2PZ, must really have been serious about the Mercedes Benz, because it has arrived—a companion for the Telefunken rx. Sherwood's modulator troubles have all disappeared in a puff of smoke—so to speak. You just ask him. On the associate front, Ross Beckley has a new rx which must be a good one because he hears me S8 and Belmont Bob has a strange grey box. I am told anyone able to identify it may carry it away. The Marmong mob still play loud music at all hours, and one, who is not even a member, borrows Dennis' "A.R." just to read these notes!

And that's the round-up for another month. What about visiting the old firm next meeting? We'll all be there at the University College, Tighes Hill, on Friday, 8th March, at 8 p.m. They are saying there's going to be an election, so why not come and heckle with the rest? And don't forget our broadcast, Monday nights, 3596 at 7 o'clock—you'll hear all the latest gossip. See you both places, 73, 2AKX.

THE BLUE MOUNTAINS SECTION

The monthly meetings have been well attended and the lectures have been by Les 2ZBJ and Arie Bless on transistors and sideband equipment.

The Divisional Dinner, held at Atchison St., was represented by 2ART, 2ZNS and 2ADA. The evening was most enjoyable and Don 2ART received second prize in a tic-tac-dough competition. The following day the Annual Convention was held at Dural and four members from the club, namely, 2QA, 2ZNS, 2ZFB and 2ADA, operated the blind fold tx hunt for the Division.

Bill 2TS is getting spliced on 23rd of this month, so our best wishes are extended to

N.S.W. DIVISION, W.I.A.
NTH. COAST & TABLELANDS

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URUNGA

during **Easter Week-End**

12th to 15th APRIL, 1963

144 Mc. tx hunt, 40 mx tx hunt, all band scramble, general entertainment.

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Bill and his YL. Bill has been heard operating from his new QTH at Orange at good strength. Don 2ART is preparing for his yearly hibernation to the house for the winter and should be back on 2 mx very soon. Jack 2NC is on every night on 2 mx after fixing up his aerial change-over relay and listens via his converter through a newly acquired rx with all the mod. cons, etc.

A tape night was held at yours truly's and six members heard two tapes plus slides, namely Quad and V.h.f. Antennae, and it was midnight before the last QSO ended. Keith 2ABK answered one of Noel's (2ZNS) many CQs in the early stages of his operating and was at the time his furthest report from the west. Also Noel and Norm 2QA have been working 2 mx duplex with no problems. Jack 2ADF has been getting mixed up with Noel on 2 mx duplex also.

Wal 2MS and Ken 2AVN are still busy with the bush fire show, but it looks like the real danger period is over. Yours truly has made a mod. to the 7 Mc. mobile so that we now have r.f. with audio instead of audio and some r.f. Al 2ZFB is back on 2 mx with new gear and is coming through loud and clear. A new heap which I have not reported was obtained by Bob 2ASZ and is of the self tapper variety, so we should hear a lot more of Bob mobiling the countryside.

The Feb. lecture was by yours truly and dealt with electronic business equipment including slides. 73, 2ADA.

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VICTORIA

WESTERN ZONE

Activity in the Zone has not been very great, but should improve with the passing of harvest, holidays, and hot weather. Bill 3AKW has an alternator in action and his gear is now running from a.c. supply. Wilson 3AFU has his mobile rig going nicely and his signals have been heard from various parts of the State. Vic 3AEQ has some equipment ready to make himself heard on the 53 Mc. band. Bert 3EF has been in strife with both rx and tx. He now has both tamed and is operating on 80 and 20 mx. His first call on 20 mx resulted in a QSO with EP2AC. Nice work! Keith 3AKP has been busy with t.v., but one of these days will blow the cobwebs out of his gear and come on the hook-up. Allan 3HL has been working fairly regularly on 20 mx s.s.b. and "bags" a few rare ones.

Al Scarlett, W2CC will be in VK in April and will be staying with Allan at Callawadda for a week. W2CC and VK3HL have been in contact since 1934 and still maintain weekly skeds on 40 mx c.w. Al hopes to meet as many of the gang as possible during his stay in this country. Bill 3AKW has been enjoying a visit from his brother, Tom 2FK. Tom is an "old timer" and operated as 3TK around 1930. 73, 3HL.

NORTH EASTERN ZONE

During January 3ACK tried his hand at making baluns for 2 mx. It may be recalled that a few months ago John assembled an electronic organ kit; nowadays he spends a little time learning how to use the unit.

After months of waiting, 3APF finally obtained a vidicon tube and was thus able to finish off a closed circuit t.v. project. The circuit works as per specifications and has now been "junked". Understand 3AWT still plodding along on 2 mx exciter. Yarrawonga Club not heard too well here, nor very often for that matter. 3CI has erected an antenna on his ex-t.v. 60 ft. tower. Late in Dec. 3AYD had to pull down the triband quad to carry out repairs. Lesson learned here is not to use single strand wire as strainers or elements. 3AAQ currently portable near Ballarat, occasionally nets into the Zone hook-up on Friday nights on 80 mx.

3ACD has constructed a "Monimatch" and early in Feb. was learning how to adjust it. 3ASF and cohort, 3ZHO, are contemplating trying out modulated light transmissions, however gear has still to be assembled and this is the killer. 3ZJH ceased morse practice prior to Xmas and finds it difficult to start again. 3ASY flung out one of the two 807s of final and intends to be satisfied with single 807. Took a portable 6w. to Scout Corroboree at Hobart in Dec., however the location was unsuitable for propagation; only made four contacts.

Shepparton chaps have been busy on plans for the State Convention, to be held there on March 16 and 17. For heavens sake chaps please give us a fair go and get your applications in early to the appropriate quarter. 73, 3ASY.

MIDLAND ZONE

The festive season is over and by all appearances so is all activity within the Zone, almost. This month I have not heard much from the Zone generally, hence there is little to report as to members' activities.

Ian 3AQU is active on 20 mx, working some DX, but like myself finding the band very patchy. There has been some short skip operating and short-long skip periods intermittently to Europe on the short path in the evenings. 10 and 15 mx are a dead loss at the moment. 40 mx is patchy and noisy and the stations working this band stay in their groups and I find it impossible to attract their attention with my 7w. input.

By the time these notes are in print we will have had our quarterly meeting, which will have been held at Maldon. Our host for the evening will be 3ZLJ, Ian Gorsuch. That's about all I have this month, so fellows please help keep these notes alive with news of your doings. 73, 3ND.

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VICTORIAN DIVISION, W.I.A.

STATE CONVENTION

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QUEENSLAND

Who was the character that said, "If you put your neck out long enough, and often enough, it will get lopped off"? Well, it's happened to me. I have been elected, or conned or something, into being the Sub-Editor for the Sunshine State. Well, it was sunshine when I left for Brisbane. I'm not sure whether it's an honour or not, but I expect to get quite a lot of fun out of writing these notes and keeping you posted on the doings of the W.I.A. and of various Hams. And if I can't get any news, I'll invent some, so keep me posted, as I have a very vivid imagination, and I would hate PanSy to get the wrong idea about us strapping, well built, Queenslanders. All this of course, pre-supposes that someone pinches the Editor's red pencil. (Like h—, Ed.) Now just a second whilst I put on my eyeshade and make like a Sub-Ed.

The Jan. general meeting was held at the State Service Union Rooms on Friday 25th and was particularly well attended by over 60 members, 52 signed the attendance book. The other eight were probably spies from Southern and South Western States, checking on how a well conducted meeting can be had. Pat 4KB was in the chair and business centred around the article in "QTC" on the Divisional Constitution. If any member is not clear on the article, please write to Box 638J, Brisbane, and he will be put right.

The important business of the evening was Don 4GP's talk on "Television," and how Don warmed to his subject. He really put all his interest into it and drew his audience with him for two hours.

Have you any notices of motion for the Annual General Meeting in April? If so, get them down to Box 638J as soon as possible.

The Ipswich and District Radio Club had a good attendance of 35 members at its Jan. meeting, which was held at the 2nd Ipswich Scouts Hall. A.O.C.P. classes have been started with a qualified teacher in charge, and Ron 4RG is looking after the morse angle. Merv 4ZGM has been elected as assistant sub-editor to help me with these notes and I am very pleased indeed to have him, because Merv., old boy, I'm going to lay the blame at your feet for any notes that ye Ed. may disagree with.

My young son asked me to check his homework the other night and one of the words he had to break down was Auditorium. He reckoned that it came from two roots, Audio I hear, and Taurus the bull. "No, son," I said. "that sort of definition went out a long time ago, although I do believe it is still used in South Australia."

Al 4LT has returned from three weeks at the seaside and then worked some rare Middle East DX that had accumulated on his aerial in his absence. His only complaint, re his holidays, was that shoes weren't made for human beings. Man, a good fisherman isn't human, he only looks that way. What did you want shoes for? Bare feet are just the shot for luring unsuspecting sandworms to the surface, unless of course, you are ticklish.

Some people can be lucky. Bill 4ZBD, who is the "Printer's Devil" for "QTC," hung up his stocking for Santa Claus and you won't believe it, but he got a new rx. I'm led to believe that Bill never did like the blonde

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member of the Andrew Sisters, and he is pleased to tell all and sundry that he can tune her out. Some set!

Bob Campbell and Ray Rumble, previously of the Southport Radio Club, have offered to organise the 1963 Convention, to be held at Alexandra Headlands on the 29th, 30th and 31st March. It is right on the beach, no cooking, no washing up, and plenty of room. Bring the whole family and have a good time. It's a wonderful opportunity to meet your fellow Hams and also get your XYL interested. The cost of the Convention will probably be less this year. And talking about costs, don't forget your subs are due very shortly, and it saves the blokes concerned with the bookwork quite a lot of work if they are paid promptly, not to mention that your "A.R." continuity will not be broken.

A very good job of public relations was performed on 26th and 27th Jan. by 4ZEL, 4ZAK and 4ZEK, who provided communications between check points for the Mt. Bruce Scout Group who were on a hike, passing through Moggil Ferry and College Crossing. Don't forget fellows, when you co-operate with the Scouts at any time, let Scout H.Q. know (Scout Shop, Broadway, Brisbane). It could be printed in their magazine "The Scouter" with benefit to them and to us. (Being a Scout Master, I must get in a plug some where.)

The traffic police in Brisbane don't take a very kind view of horse and buggy transport, so I had to unharness Cyril (my horse) and ride him solo in order to get around. Bit of a bother trying to work mobile though. My wife complained all the way down from Ayr to Brisbane about my mobile. I can't see why. It worked well, all she had to do was sit in the rear of the buggy and work the pedal wireless. It's a good wireless too, all that I have replaced is the pedals. My XYL says that unless I get a better rig for next holidays, I'll be replacing the YF. Never heard of a valve with those letters!

I visited Alf 4OL, who is doing a mighty job running 4WI. It seems to be an easy job when you are listening to his dulcet tones from your shack, but he is doing it under difficulties. Due to his work, he cannot, at any time, attend a W.I.A. meeting, so has to depend on others for news, etc. And the noise at his location—words fail me. How about keeping him posted with some news via letter, instead of doing it over the air, unless of course it is last minute news.

Noel Lynch, with other Scouters, took some of the V.h.f. Group to Nerang on 3rd Feb. to look over the Easter Venture route, for which the V.h.f. Group, with a 40 mx link, will be doing the communications.

Bob 4RW is on the walkabout again. This time he is heading for Tasmania. Won't be back until Easter. How do these blokes get all these holidays? Basil 4ZW is home again after nine weeks' holiday. See what I mean? Heard about Stan 4SA and his fishing trips? He went out fishing and caught only catfish. Most good fishermen take a knobkerrie along to deal with these menaces, but Stan belts them to death with his wooden leg. How do you put up with him, Jess? I believe Alf 4OL and Stan 4SA declared a truce whilst I was in Brisbane. It seems as if they cannot agree as to who can talk intelligently for the greatest length of time. Or for that matter, just talk.

Jim 4HZ is still in trouble with the modern bogey t.v.i., but he has hopes of getting it licked in the near future. Jim's XYL, Nell, has been in hospital seriously ill and is now back home. We all hope you feel much better Nell and recover your usual cheery outlook.

Hal 4DO is going overseas on holidays. (Again, see.) How do they do it? He is leaving on 5th April and judging by his itinerary whilst eavesdropping on him, it's going to be some holiday.

Some of the members of the Burdekin Radio Club have taken up flying and are doing quite well at it. Associate member Harold Cisloski is flying solo and is only waiting for his 40 hours to come up. Dale 4ZDG is another who is doing quite well. Ross 4RO is chasing t.v.i., or was, but as he is going on **holidays** (that word again) during Easter, he is building v.h.f. gear to take with him. Ever listen to Bob 4NG and Bill 4WD of a Sunday morning? You can pick up some good gen on the behaviour of 6 mx from listening to them.

Took Cyril for a gentle trot one night in Brisbane, and ended up at Salisbury; going along Dulcie St. Cyril suddenly shied and I realised that the object he had shied at was Tel-Star. Dismounted for a closer look, and discovered it wasn't Tel-Star. It was Ron's (4ZK) Morris utility, bristling with aerials. Fair dinkum, I've never seen so much gear packed in such a small area. On the front bumper is a 12 ft. whip for 40 mx and on top of the cab is another for 6 and 2 mx. In the cab is a Compass rx, converters for 40, 6 and 2 mx, tx's for each of these bands, and under the bonnet is the power supplies. And with all this gear he can still fit three people in the cab. Then to cap it all, he showed me the latest thing in crash helmets. Built-in transceiver and aerial, the whole works. Too complicated, I'll stick to my pedal wireless! I could really go to town on this gear, but I'm afraid ye Ed will limit my verbosity, the only excuse I have to offer is that over 25 years ago I was scribe for VK4, so "give us a go will yer"!

Another cheery bloke I met was Les 4EH who is not a well man by any means. Thoroughly enjoyed my visit with you Les. His XYL makes a good cuppa, too.

Remember "Doc" Hadley, you old timers? Well "Doc" has staged a comeback. His old call sign was 4AH and its present holder has a mighty predecessor to live up to. "Doc's" present call sign is 4HY. 73, Uncle Xray.

TOWNSVILLE AND DISTRICT

Basil 4ZW called in on his return from his overland trip south and as usual visited quite a number of places on the Murray River district and oozes from the fruit he consumed direct from the trees. Ted 4EJ at long last has built a new shack and the boys in VK2 are dying to see proof as per a coloured photo and not re-touched; boasts that all the old junk has been given the go-by and at present is making in-built cupboards to keep the place clean and tidy! Bert 4LB is highly satisfied with his new quad and guarantees to outsignal my beam. Alan 4BE made a welcome call the other night on the band and quite a long-time no hear him. Bob 4MF is still chasing better gear to end gear and at present using American rx; hopes to go on a long tour mobile in the near future.

John 4DD is still on the band and heard in QSO with the States. Claude 4UX and family have returned from a holiday trip to the big smoke. Ere these notes appear I will be calling on the Editor to make a personal complaint why I never received a further zero to my salary, same as that favoured scribe? No names, please. This time I will have left on 4th Feb. for a trip as far south as Hobart and hope the weather treats me kindly as at present the floods are everywhere.

Pleased to know that Eddie 4OW has returned from Darwin to Brisbane and can be relied upon to come on the air each Sunday when shift work allows.

Why oh why cannot those chaps who come on the air "testing, testing," please give their call signs (besides breaking the regulations). They will get a report on their testing if only they would check their freq. as I often call QRZ the testing station and will be pleased to give them a very candid report. So what about it chaps, if you want to test, there are many others roaming the band like myself who would be only too pleased to assist. That is the basis of the Amateur Spirit.

Will prevail on Claude to write the notes while I am away on leave, so cheerio, 4RW.

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SOUTH AUSTRALIA

The monthly general meeting for Jan. of the VK5 Division was held in the new clubrooms to a very representative gathering of members and visitors, and the guest speaker was Mr. C. Pearson (5PE), who discussed "Transistors and their applications." Very little can be said of the technical side of this lecture because practically the whole subject lent itself to the blackboard, and as the VK5 Council is still persisting in its attitude of refusing me permission to post the blackboard away to the magazine, it goes without saying that my comment must be limited to the personal reactions of the members present. Clive mixed his theory with a little humour, a good deal of dexterity on the blackboard and quite a deal of practical advice. All in all, Clive should be more than satisfied with the reaction to his lecture and his audience definitely richer in transistor theory and application. Members took their opportunity at question time to quiz the lecturer and Clive came through with flying colours, further demonstrating his knowledge and competence in the subject. Tony 5II was responsible for the vote of thanks to the lecturer, and the applause which greeted the vote of thanks was sufficient indication of the spendid job performed by Clive. Incidentally, Tony made a suggestion that perhaps Clive would consent in the near future to give a lecture on the basic theory of transistors, and whilst Clive did not comment, the members' reaction to this suggestion should do the trick.

Very little business of note came up for discussion, although the suggestion that VK5 should run a contest to help publicise the coming Adelaide Festival of Arts (approx. one year hence) caused quite a deal of discussion and the matter was put forward for a month to check on the general membership reaction to the idea. The meeting closed at 11 p.m. (compulsory now in the new clubrooms) and members departed for their couches of virtue, or otherwise, well pleased with the night's entertainment, and more than pleased with the appointments and general facilities of the new clubrooms. Come along some time and see for yourselves.

Among the visitors to the monthly meeting was two VK3s, Keith 3IV from Ballarat and

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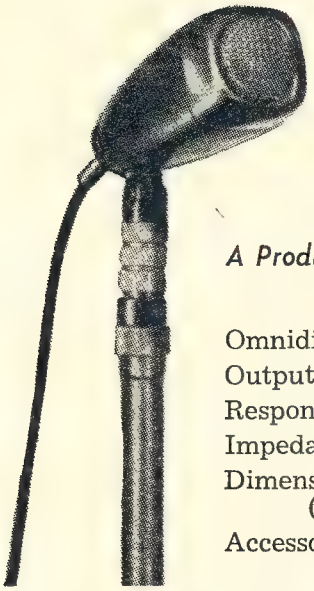

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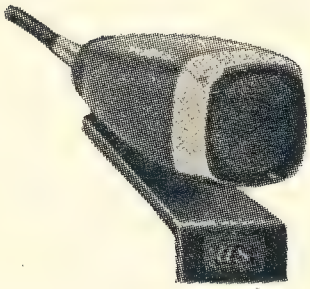

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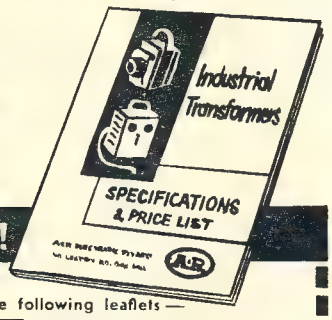

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Col 3XV from Oakleigh. I had quite a chat with these two gentlemen and despite the fact of being VK3s, they turned out to be extra good scouts! Col is a brother of Maurie Anderson (ex 5MA) of Cheltenham, but probably better known from his association with Alf Traeger and the Flying Doctor Service. Maurie has passed on of course but was always an ambassador for VK5, and a good representative to boot.

Rob 5RG is back in the R.I's. department after a sojourn at W.R.E. Rob has certainly been around in his time and without any doubt has accumulated a goodly store of knowledge in all matters radio. Always willing and eager to help in any way, he would make a good council member and someone should begin twisting his arm in that direction.

Athol 5LQ noticed at the meeting with quite a discoloration below his right eye, which led me to ask him if the verandah post had eventually fallen down. He did not seem to be very anxious to answer my kind enquiry, but finally broke down and admitted that the discoloration was due to a r.f. burn! Could he possibly have been having a lend of me??

Noticed our estimable chairman, John 5JC, anxiously glancing across the room several times during the lecture and at times wearing a frown upon his aristocratic looking brow. With his added db. level to his hearing, he apparently could catch the mumble-mumble from one of those present, who apparently knew more about transistors than did the lecturer and was not interested enough to shut up. Nice work, John, the old ears must have been right on the job. Next time I answer you back I'll have to whisper.

Talking of mumbling during the lecture, I noticed two of those present having a good old yap to each other using the deaf and dumb sign language. It's a long time since I used that method myself, and am somewhat rusty now, but if I understood correctly, then I feel that I have missed something in my sojourn on this earth!!

John 5JO has been scooting hither and thither around the VK5 countryside over the Xmas break and if all can be believed, has been working stations galore on his portable set-up. The list of stations he has contacted looks like the "Who's Who" of Amateur Radio, and the information he has gleaned on his trip would qualify him for a job on my espionage staff any day he wants one. The salary?—Oh a couple of those noughts that Ye Ed. throws around with gay abandon each end of the year!

Eric 6VM and family have been over in VK5 on one of their periodical visits, and of course have been seen in the company of Jim 5FO and his family. This friendship was formed many years ago on the air by the two families (four hour QSOs, etc.) and has not lapsed through the years. Eric's XYL Loris can claim the distinction of being an ex VK5, she is the sister of Len (ex 5VM) from Crystal Brook way, who incidentally, if my spy can be trusted, is on the way back to the air. Good news, Len, the more the merrier.

Received the usual seasonal letter from Arch 5XK, that refugee from Norfolk and Lord Howe Islands. He tells me that the notoriety handed out to him since those DX-peditions has been enormous and in the same breath tells me that it has not changed him from the quiet unassuming ambasssador for c.w. that he has always been! Quiet and unassuming? It is a wonder his typewriter didn't collapse in a helpless mess as he wrote that. Nevertheless, I will grant him the title of ambassador for c.w., he has done more for c.w. in VK5 than any three s.s.b. converts put together, and seriously, who would want to put three s.s.b. converts together? Don't answer that.

Ken 5IM reported as passing through Lucindale over the Xmas period, as was Howard 5XA, but neither have as yet reported seeing any Norfolk Island natives with bones through their noses, although they did report a Lord Howe Island native with a nose through his bone!

Rumour has it that John 5JW has been heard on 7 Mc. with some strong c.w. signals. If this is true, we welcome him back with open arms after such a long absence.

Vic 5JH also heard from Nhill at times over Xmas, although at the time heard he was camped in his car in pouring rain, his spirit unbent and unbroken.

Bob 5BG still recovering from the effects of the before-mentioned wind which nearly uprooted VK5 recently. He lost all of his aerials, beams, etc., but it will take more than this to keep a good man down. What say Bob?

Unless my ears have let me down badly, that was the voice of Harford Scott that I heard under the call sign of 5JO in the vicinity of Currency Creek. Have not seen you since Joe's wedding, Harford. Keeping well? Dave 5DS, my favourite Scotchman, still in the pink, even though he throws New Year parties that start at midnight and carry on until the wee small hours of the morning. Such frivolity.

Reports are still filtering through of breaking and entering of shacks, and once again opportunity is taken to warn all those of the gang with outside shacks to keep them under lock and key, or better still, fix up some alarm system and possibly catch this persistent offender. He is pretty shrewd, he knows his mark and only takes what he wants, so be warned fellows.

Talking of alarms, I heard a beauty the other day from the shack of Jack 5LN. He was in QSO with Lionel 5LB and every now and then there would be a bang come over the air that would have done justice to a royal salute. I stuck around long enough to find out the answer, and it appears that in Jack's shack is a big tin with a couple of loose funnels on top of it, and every now and then it contracts or expands and everything in the shack, including Jack, jumps up in the air about six feet or so. It scares Jack and he is half a wake up to it, so what would it do to a would-be-burglar?

By the way, I see that Jack has been wrongly labelled in these notes for the past two or three months with the call sign of 5LM. I thought he acted cool toward me at a couple of meetings and decided to find out why. Now I am sure that I could not have made the mistake, I am equally sure that the Editor will not accept the blame, nor will the dispenser of unwanted chassis be likely to accept the blame, so once again I will have to be the martyr. It puzzles me. I may not be always right, but I am never wrong! (Two Whites don't make a Wong.—Ed.)

The 5WI session on 40 mx has been letting us down a trifle lately. Reception conditions have not been the best on this band and last Sunday, to make matters worse, there was no 80 mx re-broadcast available. One good thing, all of this no reception at times on the bands makes everybody appreciate the voluntary efforts of those responsible and these fellows certainly deserve some appreciation. I have been tempted to forget to write these notes for one month, just to see what appreciation I would get. Only the thought of the cheers and other expressions of joy and happiness from all concerned deters me.

Geoff 5ZCQ is now the VK5 Federal Councillor, and will represent us at the coming Convention in Sydney. He replaces Phil 5NN who represented us in Perth last year, and of course will be the new Divisional President as this is being read. I hope.

This month will also see a new Council being voted for and my spies are hinting at some surprise nominations. This is all to the good, as without a live Council, the Division won't get very far and new, enthusiastic and keen members are always wanted.

Just when I was getting all enthusiastic and handing out bouquets to VK6 on the quality and quantity of their Divisional notes, what happens? Apparently overcome by modesty and shyness at all the praise being handed out, the scribe took off on the padre's bike. Come out, come out, wherever you are, I did not mean it, personally I think the notes were a bit on the nose. How's that? Feel any better?

Radio funny. Joe 5JO made up a portable rig for the Brompton Boys' Club and took it with him on his aforementioned trip round VK5. It outperformed his home rig to such an extent that the Boys' Club could be unlucky! How low can one get?

Jack 5LR is now a gentleman of leisure, with nothing to do and all day to do it in. He resigned from the P.M.G. at the start of this year and tells me that he intends to enjoy life and relax in the sun. He has not had the best of health for some time now, and I can't say I blame him for giving the game away. To be truthful, I am quite jealous. Good luck to you OM.

Heard Geoff or Jeff 2AHM in contact with Ken 5IM) the other evening and believe it or not, Ken was taking credit for the rain that had been falling all round VK5 including apparently Wentworth. It appears that on the Xmas card he had received from the 2AHM family were written the words "Please send us some rain for Xmas," and because about 260 points had fallen for them, Ken was sitting back and endeavouring to take all the credit.

Managed to get on to the tail end of a QSO between Frank 5MZ and Carl 5SS and gathered that Carl was off somewhere or other chasing sheep for a few days. Couldn't manage to get any more details, but sincerely hope that Carl will remember to wear a hat all the time, just to make sure that the drovers know who are the sheep!

Cec. 5BZ heard on 7 Mc. for a short period the other night, very short in fact, and whether he succeeded in getting into the QSO from the side, I will never know. Rumour has it that he is preparing to flee the country on an extended European tour. Want someone to carry your bags, Sir?

I suggested to our worthy President (John 5JC) that it would be a good idea if the Divisional frequency meter, at present in my custody, should be held by the operator of 5WI (Clive). Frequency checks, if required, have always been given by 5WI in the past and if they agree to this idea, then Clive will be happy to oblige, I hope. Pass the buck, Pansy, they call me!

Never hear anything of Brian 5FQ these days. There was a time when he was never off the air, but of course that was when he was a single young man and had plenty of time. No offence meant, Alison! The nearest I have got to hearing him on the air was last Sunday, when out of the transmission of Reg 5RR came a CQ on a motor car horn, and Reg commented, "That was Brian 5FQ, he always toots a CQ on the horn as he goes past."

Les 5NJ going great guns portable from Port Elliott over the Xmas and New Year break, and puts out a remarkable signal with the low power at his disposal.

I notice with a sense of misgiving, the increasing tendency on the part of some contributors to this magazine to belittle the art of s.s.b., ahem, and feel that apparently they are working on the assumption that something new must automatically be inferior to the existing art of telephony. In an endeavour to stamp out this state of wrongful thinking about s.s.b., I would like to point out that I am at the moment idly thumbing through a technical book published around 1930, and on page 59 I read with some surprise, I quote, "In March 26th, 1926, commercial two-way radio telephone conversation was carried on between the U.S. and England, and the type of transmitter used was termed a single sideband eliminated-carrier transmitter." Well? What about that? Something new eh? Anything that old must be good. Look at me. No more disparaging remarks about duck talk please. Ooops! Incidentally, I never read the v.h.f. notes, so I could not possibly be upset about anybody advocating s.s.b., Gercha.

When I was a member of Council we used to sip tea and biscuits at the end of the Council meeting and then all decorously depart for home. Just what they sip these days I would not know, but my spy, who is planted right in the middle of Council, tells me that the Elizabeth represenative on the Council, Tubby 5NO, left the lights on his car burning merrily away at the last meeting, and then had to be pushed down the road by the entire Council, and as far as is known arrived home safely. The chairman (John 5JC) went one better, he managed to get completely lost and arrived home in the early hours of the morning, crept in the back door and retired for his beauty sleep. Next morning the family rose early to go to town for some shoe buying, only to find the lights on the car burning dimly and the battery flat. We will draw a veil over the domestic scene which followed, but this I can say with freedom, the chairman of the VK5 Division was ruled out of order early in the piece and that lump on the top of his head is where the acting chairman bonged him one when he rose on a point of order! It never even marked the gavel.

It would appear that my lone fight for the payment of our licence renewal at any post office is at last paying dividends. Leith 5LG informed me at the meeting, with an unmistakable sneer in his voice, that his wife had paid his licence fee that day at the Edwardstown Post Office, and the joker never said, "Boo." Well, we will see, I must trot up and pay mine next week. Place your order now for next month's magazine and read either about the victory or the defeat.

Received thousands and thousands, well, hundreds and hundreds; well, tens and tens; oh have it your own way, several letters over Xmas referring to my humble efforts in this mag. My natural modesty prevents me from saying more, but thanks a lot, I enjoy doing it too, it feeds my ego! I even received a telegram from Max 2ARZ saying, "Merry Xmas. Paid local office again." How cruel can they be? 73 de 5PS. PanSy to you.

— . . . —

TASMANIA

The v.h.f. bands have really hit the headlines in January. It all began when David 7ZAI and Reg 7ZAO worked a VK3 on 2 mx. A little later, Len 7BQ was worked in Hobart, to be followed by 14 VK3 contacts made from

Hobart by Winston 2ZWH, formerly 7ZAP, who will again be resident in Hobart I believe. This all goes to show that populating these bands can provide some most unexpected results. It is also good to learn that 7ZEC, from Evandale, is able to get through to Hobart nightly on 2 mx.

John 7JF has erected a G5RV antenna and is now trying it out on all bands, after one or two teething troubles. The v.h.f. gang have now received their crystals to land them on 144.1 Mc. and the chin-wagging which now goes on all on the same frequency must be heard to be believed.

Remember the Annual Dinner and General Meeting of the Institute. The date to keep available is Saturday, 23rd March. Bring your XYL, girl friend or mother along, and make it the usual wonderful event.

Remember, also, the elections for the new Council. If you are a full member, be sure to vote so that the Council of your choice directs our Division's affairs.

At our Feb. meeting, John 7ZOO delivered a very interesting lecture on pulse modulation, which convinced those present that such a form of modulation on v.h.f. had many points to recommend it, despite the width of the signal. It was very good to see one of our newer members delivering the lecture so ably.

Amongst the new members elected at this meeting was Cros. 7CW, or should I say, re-elected. We welcome you back to the fold and hope to see you along often, as well as on the air, too, Cros. Michael 7ZAV has installed his mobile 2 mx gear in his recently acquired car and is having lots of fun running his battery down at regularly short intervals. Geoff 7ZAS is back at work and feeling and looking a lot better after his recent illness.

Our next Federal Convention will soon be upon us and our Feb. meeting passed several items to be included in the Agenda. It was first class to have two items brought forward from the Northern Zone, and we hope for further examples from the other Zones of interest and activity such as this.

Conditions on the lower frequencies have been variable during Jan. I personally worked a dozen or so Ws during the month on 3.5 Mc., as well as VEs and JAs, but on other occasions the same band was virtually dead with considerable QRN present. 73, 7ZZ.

NORTH WESTERN ZONE

Terribly sorry for missing the last edition, but an honest mistake was made regarding the publication date.

The first meeting of the year was held on Tuesday 5th, and a good attendance was present. Many old faces, such as 7TT were there and we were pleased to welcome visitors, Basil Barnes, Ernest Greenhalf and Max Boskell. Much business was discussed, including suggested items for the Federal Council agenda, and a future tx hunt, a possible date being 10th March. The controversial letter seems to have been laid to rest at long last. No ill feeling has resulted and much has been achieved by it.

The meeting was followed by a fine color slide show by courtesy of 7SF and 7MX. Max, having recently returned from VK2 and VK3, favored us with many colorful mainland shots.

Rumour has it that 7MS will soon be replacing his queer quad with something special. Unfortunately no more data is available. David seemed in uncommon good humour Tuesday night, although he did seem to be suffering from that now-common ailment, the square-eye disease. I see 7MX has recently acquired a phased-array antenna—and not on 2 mx! Some v.h.f. is coming through from VK3 and beyond, and 7AI seems to be doing fine DX with his "duck-talker". Athol, although officially cleared by the R.I., has been unjustly accused of t.v.i. The T.v.i. Committee have the matter in hand and will no doubt clear the matter up. Sid 7SF has a nice black box of auto-tune tricks. No doubt we will soon hear this competition-winner on the air. Keep at the studies Basil, Frank and Bruce. The next exam., I think, is in April. 73, 7ZBH.

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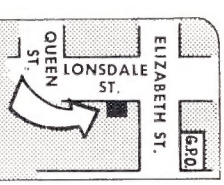

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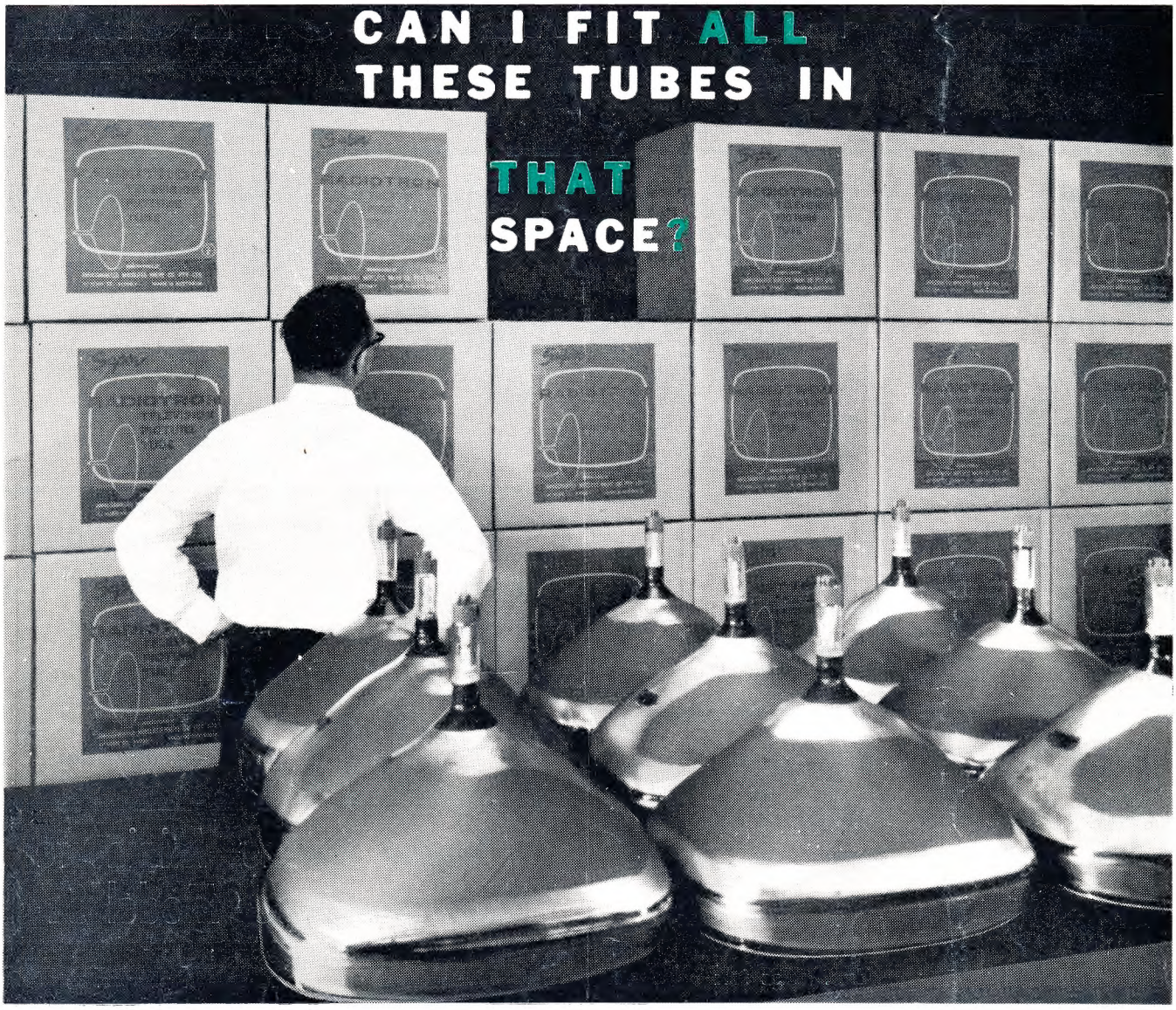

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